Evaluation of the Support for Energy Education in Communities programme

Final Report

23 October 2024

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Preface

This report has been prepared for the Ministry of Business, Innovation and Employment by Jo Smith, Paul Giles, Aaron Gabbie, Sharyn Jones, and Caleb Coulon, and reviewed by Nick Carlaw and Stephen Knuckey from MartinJenkins (Martin, Jenkins & Associates Ltd).

For over 30 years MartinJenkins has been a trusted adviser to clients in the government, private, and non-profit sectors in Aotearoa New Zealand and internationally. Our services include organisational performance, employment relations, financial and economic analysis, economic development, research and evaluation, data analytics, engagement, and public policy and regulatory systems.

We are recognised as experts in the business of government. We have worked for a wide range of public-sector organisations from both central and local government, and we also advise business and non-profit clients on engaging with government.

Kei te āwhina mātau ki te whakapai ake i a Aotearoa. We are a values-based organisation, driven by a clear purpose of helping make Aotearoa New Zealand a better place. Our firm is made up of people who are highly motivated to serve the New Zealand public, and to work on projects that make a difference.

Established in 1993, we are a privately owned New Zealand limited liability company, with offices in Wellington and Auckland. Our firm is governed by a Board made up of Executive Partners and Independent Directors. Our Independent Directors are Sophia Gunn and Chair David Prentice. Our Executive Partners are Sarah Baddeley, Nick Carlaw, Allana Coulon, Nick Davis, and Richard Tait. Michael Mills is also a non-shareholding Partner of our firm.

Acknowledgments

We would like to thank the eight whānau who generously invited us into their homes and shared their stories and experiences with us. In all case studies we were welcomed and trusted with personal stories that gave real-life resonance to the goals of the programme.

Equally we would like to thank the SEEC providers who connected us with their clients and entrusted us to meet with them without the provider attending, and invited us to their workplaces and community hui to hear more about their mahi.

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Executive summary

The SEEC programme aims to make homes warmer, drier and more energy efficient

The Support for Energy Education in Communities (SEEC) programme was established in 2020. It complements other initiatives across government and the community and private sectors that focus on making homes warmer and more energy efficient. SEEC provides funding to contribute to the cost of providing personalised, specialist advice and education to households that are in energy hardship, and of buying low-cost energy-saving equipment and devices. SEEC funding is available to eligible community-level groups, organisations or businesses, and is primarily allocated through a regular open process.

We used mixed methods to evaluate the costs and benefits of SEEC

The Ministry for Business, Innovation and Employment (MBIE) commissioned MartinJenkins to evaluate the SEEC programme. The key objective of this evaluation was to help MBIE better understand the costs and benefits of the SEEC Programme. The purpose was to prepare a cost-benefit analysis (CBA) of the first three funding rounds and boost round, and generate insights that will ensure better delivery and evaluation of future SEEC funding rounds.

In addition to the CBA, our methods included online workshops with funding recipients (SEEC providers), reviewing providers' reporting to MBIE, and qualitative case studies of a small sample of recipient households. For the case studies, we interviewed eight whānau from across four geographic regions.

SEEC providers deliver variegated services

SEEC providers each deliver some combination of energy education, low-cost devices, minor repairs and improvements, and directly providing or making referrals to other services such as insulation, heat pumps, and advocacy support for tenancy issues.

Different providers have different areas of focus and kaupapa. For example, some focus on minor repairs to improve the warmth and energy efficiency of the home, while others focus on electricity usage (including checking the household is on the right plan and understands their power bill). Some (but not all) providers use specially trained staff to deliver their home energy assessments.

There is also a spectrum of providers, from those who focus on just energy education and devices, through to those who also organise wrap-around support and follow-ups (using a combination of SEEC funding and funding from other sources). Providers who deliver more comprehensive services will enable greater benefits for recipient households.

SEEC delivers value in several ways

SEEC activities, including providing energy education and advice, devices, and minor repairs, deliver **unique value in their own right**, but SEEC also **generates additional referrals** that would not have otherwise happened (for example to the Healthy Homes Initiative). Through our discussions with households and providers, we found that SEEC is reaching households that were unaware of other support available and is able to refer them in so they can access a greater range of services.

The energy education provided through SEEC also helps **unlock additional benefits from other programmes**. For example, showing people how to use their heat pump correctly helps maximise the benefits of heat pumps provided through other programmes (such as Warmer Kiwi Homes).

Community hui, workshops, and events have some education value, but it is more limited. A key benefit is providing a conduit to in-home assessments.

SEEC funding achieves a positive return on investment

We found that SEEC achieves a positive net present value (NPV) of $5.7 million over a 14-year appraisal period. **Every $1 invested in SEEC generates $1.70 in benefits, or a social return on investment of 14%**. These figures include the co-funding leveraged by providers.

The benefit-cost ratio of 1.70 compares favourably to those for other related programmes, sitting around the mid-range of estimates for the other programmes. We tested the sensitivity of our results to changes in key assumptions, and this showed a range of 0.25 to 4.31.

If we consider only the funding provided by the government, the results show an NPV of $7.6 million. Every dollar invested by the government generates $2.21 in benefits, or an annual return on investment of 21%.

Table 1: CBA results – base case

Measure	Total societal result including co-funding	Government-only funding result
Benefit-Cost Ratio	1.70	2.21
Net Present Value	$5.7 million	$7.6 million
Internal Rate of Return	14%	21%

To maximise value, energy education needs to be provided as part of a package of support

The unique value of SEEC has limits. To maximise benefits, energy education needs to be delivered as part of a comprehensive assessment of household circumstances, along with tailored advice, wrap-around support and follow-ups. Other types of support needed may include insulation, an efficient heating source, ventilation, house repairs, curtains, budgeting advice, and advocacy services for tenancy and benefit entitlements.

Future funding rounds should focus funding on a smaller number of providers, who can demonstrate that their delivery model is aligned with the success factors described in this report. This would see funding prioritised to providers that have the reach and the well-established community networks needed to gain referrals and be trusted to enter people's homes, as well as the partnerships and connections to provide wrap-around services.

MBIE should also:

- Provide support for a national network of SEEC providers, to facilitate coordination and collaboration cross providers, including sharing information and lessons learned. Options include funding an existing sector network (Community Energy Network, CEN), MBIE performing this role, or funding the creation of a new network. Given CEN's pre-existing expertise, relationships and activities, providing funding for them to perform this role is likely to be the most efficient and effective option (should CEN wish to extend its activities in this way).
- Investigate avenues for supporting bulk purchasing of SEEC devices and equipment, to ensure stock availability and competitive pricing for providers. Options could include establishing national purchasing contracts, or providing support through CEN as a platform for bulk purchasing.
- Plan to confirm funding earlier, in the financial year before delivery commences, so that providers have certainty and can gear up well ahead of winter. This applies to both existing SEEC programmes and pilot programmes, as providers need to confirm their staffing arrangements, and potentially expand their workforce capacity for the duration of the SEEC funding, as well as purchase stock.
- Increase the up-front payment available to providers to a level commensurable with other government contracts (in the order of 75%). Any concerns that MBIE may have regarding potential non-delivery should be managed at the procurement stage (through due diligence on applicants' track record and ability to deliver).
- Merge the SEEC Fund and SEEC Equipment and Devices Fund, so that providers have the discretion and flexibility to deliver tailored services that meet the needs of households, within their funding envelope.
- Review the current pilot of multi-year funding, with a view to expanding this in future.

More meaningful monitoring and reporting is needed

The reporting requirements for providers need to strike a balance between minimising the compliance burden on them, and gathering metrics that provide meaningful information on the impact of SEEC. Our report makes suggestions for better outputs measures, and provides advice on measuring short- and medium-term outcomes (see page 61). Providers would need to be funded for the follow-up surveys needed to monitor outcomes.

The benefits from energy education are constrained by the poor quality of New Zealand's housing stock

Achieving warmer, drier homes is a complex task, and energy education occurs within an interconnected set of factors relating to a household's circumstances and housing situation. It is not simply a matter of providing generic advice on how to save power or keep warm.

We found that poor quality housing stock is a major systemic problem, across all tenure types, including social housing. In some cases, deep retrofits are needed to achieve a warm, dry home.

Owner-occupiers may be struggling to afford and implement the scale of repairs needed. Some home-owners have inherited the family home which has not been maintained over many decades. The scale of repairs needed can be overwhelming and unaffordable. In circumstances where landlords are not complying with Healthy Homes Standards, renters can be reluctant to approach their landlord for fear of being evicted.

The advice and support provided through SEEC will not on their own lift the quality of the housing stock – concerted and joined-up efforts across government are needed. The MBIE SEEC team should stay actively connected with relevant government agencies, including with other parts of MBIE around enforcement of the Healthy Homes Standards and with Kainga Ora around addressing sub-standard social housing.

Introduction and context

The Ministry for Business, Innovation and Employment (MBIE) commissioned MartinJenkins to evaluate the Support for Energy Education in Communities (SEEC) programme. This report explains the purpose and objective of the evaluation, and the approach we took, and presents our findings and recommendations.

About the SEEC programme

The SEEC programme is part of a suite of government initiatives to lift people out of energy hardship

The SEEC programme was established in 2020 following recommendations to the Government from the 2018–2019 Electricity Price Review. It complements other initiatives across government and the community and private sectors that focus on making homes warmer and more energy efficient. The programme includes funding to build and expand a network of services to help people who are experiencing energy hardship achieve warmer, more energy-efficient homes and lower their energy bills.

SEEC funding is available to eligible community-level groups, organisations, or businesses, and is primarily allocated through a regular open process. The funding contributes to the cost of providing personalised, specialist advice and education to households in energy hardship, and of buying low-cost energy-saving equipment and devices.

The programme consists of two funds

The SEEC programme consists of the SEEC Fund and the associated SEEC Equipment and Devices Fund.

The SEEC Fund

The SEEC Fund is the programme's main funding pool. Eligible groups, businesses, and organisations can apply for funding from the SEEC Fund to expand the capacity of existing energy hardship initiatives, pilot a new scheme, or deliver related training. It is not intended to fund existing initiatives or cover the start-up costs of creating new organisations.

Examples of initiatives that will be considered for the SEEC Fund are:

- preparing and delivering educational material
- hui to provide advice and resources to groups
- training community-level advisers, and
- providing personalised advice in people's homes, over the phone, or at events.

SEEC Equipment and Devices Fund

The SEEC Equipment and Devices Fund is a secondary funding pool that applicants for the SEEC Fund can also apply for. It helps with the cost of low-cost items (such as LED lightbulbs, timing switches, sensors, blankets, heaters, draught stoppers, and scoopies[1]) that support energy efficiency advice provided to households.

Since 2021, there have been four funding rounds and a boost round

There have been four funding rounds and a boost round to date.

- **May 2021: Round 1** comprised $1.26 million allocated to nine pilot projects, that could be implemented to deliver results by winter 2021, and had the potential to scale.
- **November 2021: Round 2** involved $1.65 million for 15 projects, that had potential to scale and could be substantially delivered within 12 months.
- **In April 2022**, MBIE brought forward a **funding boost** of $350,000. This was allocated to existing SEEC projects that could be restarted or extended to deliver through autumn and winter of 2022.
- **November 2022: Round 3** allocated $1.7 million to 17 projects. The focus was on pilot projects that:
  - filled gaps in the projects funded to date in terms of the type of project, location, and the people and communities they target, and/or
  - built on the success of SEEC-funded projects to date, and
  - had the potential to scale.
- **2023/24: Round 4** allocated $2.72 million across 21 projects. This round aimed to support more projects that targeted Māori and Pacific households. It included some funding that was allocated to two longer-term pilots that will run over two years.

SEEC exists within a network of support for people experiencing energy hardship

Key government initiatives that support people experiencing energy hardship are summarised in Table 2. In addition, there is a range of private-sector and community-based initiatives, including:

- energy hardship initiatives funded by electricity retailers
- curtain banks, and
- budgeting support.

[1] A scoopy is a type of squeegee used for removing condensation from windows.

Many SEEC providers either refer households to some of these other services or deliver other services themselves. For example, some partner with Healthy Homes Initiative (HHI) providers or are HHI providers themselves.

Table 2: Key government initiatives for reducing energy hardship

Programme	Responsible agency	Objective	Target groups	Services provided
SEEC	MBIE	Warmer, drier and more energy efficient homes Lower energy bills	Households in energy hardship	Energy education Low-cost devices Some providers do referrals to other agencies, minor repairs and fixes, help review energy retailer/plan
Healthy Homes Initiative (HHI)	Health NZ	Increase the number of children and their whānau/families living in warm, dry and healthy homes and consequently to enhance their health and wellbeing, reducing the number of housing-related hospitalisations	Initially targeted at low-income families with children at risk of rheumatic fever who were living in crowded households Expanded in 2016 to focus on: • low-income whānau families with children aged 0-5 who hae been hospitalised with a specified housing-related condition • pregnant people • families receiving a benefit	Insulation, curtains, heating, beds and bedding, minor repairs, floor coverings Full and correct entitlement assessments through WINZ Support with power bills Support with finding alternative accommodation Referrals to other agencies Energy education
Warmer Kiwi Homes (WKH)	EECA	Warmer, drier homes Lower energy bills	Homeowners Own and live in a home built before 2008 Community services card holder or live in area identified as low-income	Subsidy (up to 80-90%) of the costs to purchase and install insulation and an efficient heater (heat pump of efficient wood/pellet burner
Community Renewable Energy Fund	MBIE	Enhance the energy resilience of targeted communities, to ensure they are better prepared for future severe weather events or emergencies, and support energy affordability for these communities	Buildings that will be used by communities during future severe weather events or emergencies	Grants to purchase and install solar photovoltaic (PV) and battery systems on community buildings
Repairs to whānau-owned homes	Te Puni Kōkiri	Improve the basic quality of Māori housing stock in Aotearoa Reduce the number of whānau Māori living in unsafe or substandard housing situations	Eligible whānau must: • be living in substandard housing situations • be the owner/occupier of the house or living in a whānau-owned house (that is,	Grant funding for rōpū to coordinate repair programmes in communities. Funded services can include: • Independent Building Condition Assessments

Programme	Responsible agency	Objective	Target groups	Services provided
		Build the capability of whānau homeowners to repair and maintain their homes	not in a private rental situation outside of the whānau) • be eligible for a community services card • not be able to finance the full cost of the repairs themselves (or with the help of whānau members • have a vulnerable person(s) living in the whare (such as kaumātua, tamariki, pakeke with chronic illnesses/disabilities) • have provided all appropriate access and approvals for assessments and repairs to take place Funding is prioritised to support homes on whenua Māori	• repairs • home maintenance workshops • repair and maintenance plans • project administration and project management for the rōpū
Māori and Pacific Housing Renewable Energy Fund	MBIE	Improve energy affordability Warm, healthy and energy efficient homes (through lower energy bills and greater use of heating) Improved health outcomes	People living in Māori and public housing	Funding to trial renewable energy technologies on Māori and public housing
Winter energy payment	Ministry of Social Development	Help with the cost of heating (energy affordability)	People receiving a main benefit, pension or Jobseeker Support Student Hardship	Extra payment to help with the cost of heating over winter months
Residential Tenancies (Healthy Homes Standards) Regulations 2019	Ministry of Housing and Urban Development and MBIE	Address issues with cold, damp, drainage and draughts in rental properties	Rental properties	Regulations include minimum standards for heating, insultation, ventilation, moisture ingress (dampness) and drainage, draught stopping

This evaluation's objectives and scope

Purpose and objective of this evaluation

The key objective of this evaluation was to help MBIE better understand the costs and benefits of the SEEC Programme. The purpose was to prepare a cost-benefit analysis (CBA) of the first three funding rounds and boost round, and generate insights that will ensure better delivery and evaluation of future SEEC funding rounds.

Scope of the evaluation

The evaluation involved:

- **A CBA of SEEC funding rounds 1, 2, 3 and boost round**. This drew on the available data that MBIE has gathered from the providers in these previous rounds, to understand if the benefits of the programme outweigh the costs, and to compare it to other investments or investing environments. The CBA focused on producing a net present value (NPV), benefit cost ratio (BCR) and return on investment (ROI).
- **Evaluation of the current 2023/24 funding round**, to allow MBIE to understand households' experiences of receiving SEEC services and its real-life impacts. This involved a combination of workshops with funding recipients and qualitative case studies of a small sample of recipient households.
- **Reporting advice and evaluation insights** from across the course of the evaluation. This involved identifying and describing potential improvements and opportunities for the programme, potential further evaluation that could be done, and comparing SEEC to other similar programmes such as Warmer Kiwi Homes (WKH) and the HHI. The evaluation also aimed to provide guidance and advice to MBIE on future reporting templates, to assist it in undertaking its own regular monitoring, reporting and evaluation of SEEC projects and the programme as a whole.

Table 3: Evaluation scope

In scope	Out of scope
• Ex post CBA of previous funding rounds (1, 2, 3 and boost)	• Ex ante CBA of the current 2023/24 funding round • Primary data gathering on previous funding rounds • Audit of the quality of services delivered by SEEC providers
• Qualitative evaluation of the current 2023/24 funding round, by way of workshops with funding recipients and 3-6 qualitative case studies	• Quantitative evaluation of the current 2023/24 funding round
• Evaluation insights, to identify and describe potential improvements and opportunities for the Programme, potential further evaluation work, and compare SEEC to other similar programmes	• Review of the government's approach to addressing energy hardship • Comprehensive assessment and advice on alternative funding and delivery models for energy education
• Advice on future reporting templates	

A mixed-methods approach

Evaluation of the current funding round

We completed an **in-flight evaluation of the short-term outcomes** for participating households. We did this through eight case studies, focussed on understanding the experience of receiving SEEC services and their real-life impacts.

Our method was two-fold:

- First, we **triangulated across the existing qualitative and quantitative evidence** from the previous three funding rounds and boost, such as reporting data, participant surveys, and other relevant research and evaluation. Our focus was on assessing how well the current round has been delivering against its stated outcomes to date, as well as issues identified through participant feedback. This included critical success factors, challenges and barriers to making changes and realising benefits, and learnings about how the programme's reach and effectiveness could be improved.
- Second, we used qualitative evaluation methods to **deep dive into participant experiences**. The purpose of this was to help fill data gaps (in particular, the extent and nature of benefits), as well as validate and explore issues identified in previous research.

We used a combination of **workshops with funding recipients** and semi-structured **interviews with a small sample of households**. We also attended a **community energy hui** facilitated by a SEEC provider.

Workshops with SEEC providers

We facilitated online workshops with groups of SEEC funding recipients (service providers) to garner insights across their experiences with a range of clients. We held three workshops, and all but one of the current providers attended one of these sessions.

The workshops primarily aimed to get provider input on the enablers and barriers associated with achieving outcomes of the programme. Participants were encouraged to provide honest input covering:

- a description of what they sought to achieve with the interactions they held with individuals and households and how successfully they achieved that goal
- what they perceived as the barriers for individuals and households in achieving the goal
- what they perceived as the enablers that helped individuals and households achieve the goal
- what additional (positive and negative) impacts they observed as a result of the intervention, and
- what ideas and views they have on how the SEEC programme could be improved to increase the likelihood of achieving outcomes.

The workshops involved a mixture of discussion and individual anonymised input to a digital whiteboard (using MURAL technology).

Case studies of a sample of households

We conducted semi-structured interviews with a small sample of case study households. These were conducted face-to-face, and mostly in their homes (one householder requested that we speak with them at their workplace, as they got called in to work at short notice). The seven in-home interviews allowed us to directly observe the housing situations, and the changes that had been made.

The sampling frame was households that had received SEEC services within the current funding round (2023/24).

The **criteria for selecting providers** were:

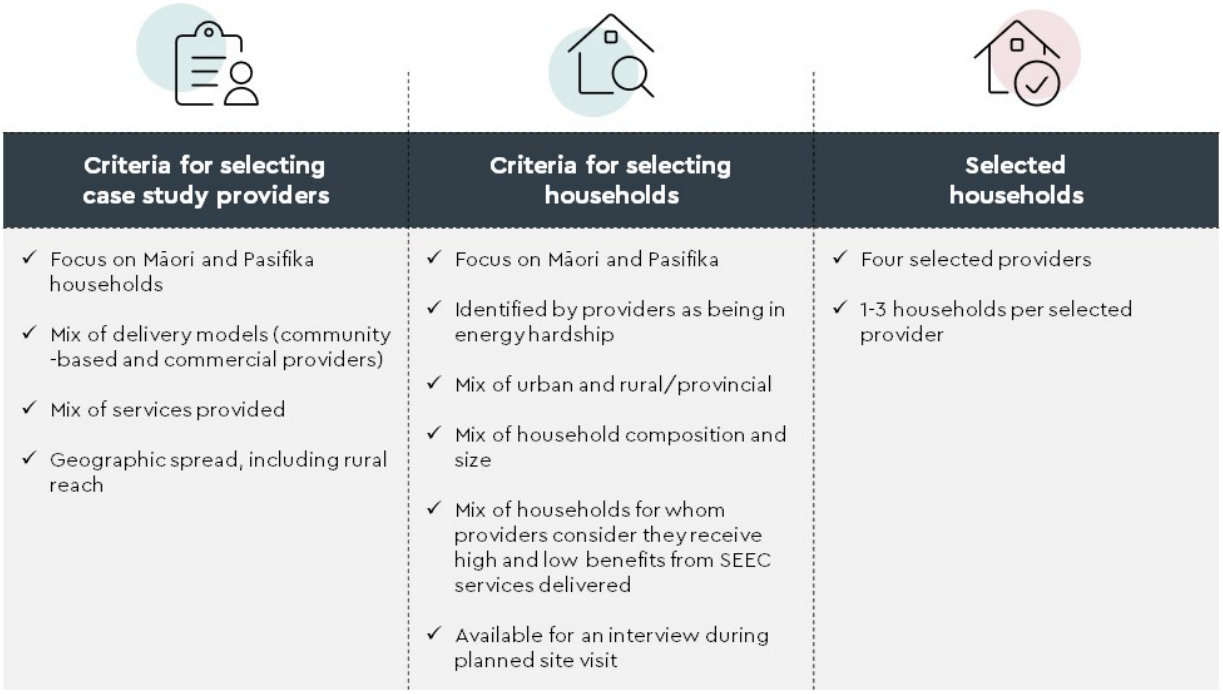
- focused on Māori and Pasifika households
- mix of delivery models (community-based and commercial providers)
- mix of services provided, and
- geographic spread, including rural reach.

The **selection criteria for households** were:

- a focus on Māori or Pacific (as these whānau are the focus of the current round)
- identified by providers as being in energy hardship
- mix of urban and rural/provincial

- mix of household composition and size
- mix of households for whom providers consider they receive high and low impact/benefits from SEEC services (to help assess the range of benefits delivered), and
- available for an interview on one of the days we anticipated being in their region (or could suggest a day/time that we could accommodate within our schedule).

Figure 1: Selecting case study households



We provided instructions for the selected providers to approach some of their client households for consent to participate in an interview and for MartinJenkins to receive their contact details. Once consent was obtained, we contacted the households directly to schedule the interview.

Interviews were conducted across four geographic regions. The following table summarises key characteristics of the case study households.

Table 4: Characteristics of case study households

Household	Characteristics
Location	2 urban 5 provincial 1 rural
Ethnicity	6 Māori 2 Pacific
Composition	2 small households (1 or 2 people) 4 medium households (3-5 people) 2 large households (6+ people)
Age	6 families with children (including adult children) 2 older (65+)
Housing tenure	3 renters 5 homeowners (including 2 on whenua Māori)

Retrospective CBA of previous funding rounds

We undertook the CBA in line with Treasury's guide to social cost-benefit analysis. This involved the following steps.

- Developing an **intervention logic map** (ILM) for the programme, to understand the interventions, outputs, impacts and outcomes of the programme. The ILM is included in Appendix 1.
- Using this ILM to identify the **full range of expected costs and benefits**. This included considering the costs and benefits to households, the government, SEEC providers, and the wider economy.
- Identifying the **counterfactual**, and **mapping the expected flows of incremental costs and benefits**, over and above this base case.
- **Assessing and collating the available data**. We worked with MBIE to take stock of and assemble the available reporting data from providers, as well as previous research and evaluation.
- **Developing assumptions and filling data gaps**. We worked with MBIE and energy hardship experts to confirm the assumptions to be used in the modelling, and the approach to filling information gaps.
- We then **built and populated the CBA model, to generate the results**. We used consistent measures of value (dollar values over a particular time period) to enable comparison. We will discount these flows of costs and benefits into today's dollars, and calculate the NPV for the programme as a whole, along with the BCR and ROI.

- Undertaking **sensitivity analysis**, to test the sensitivity of the results to changes in our key assumptions.

Reporting advice and evaluation insights

We synthesised and triangulated the information from the provider workshops and household interviews, with the results of the CBA and the other evidence gathered, to develop the evaluation findings and conclusions. Through the course of the evaluation, we also gathered insights on potential improvements and opportunities to the SEEC programme, including the potential for further research and evaluation.

We also reviewed the existing reporting framework and templates, to develop advice on a fit-for-purpose reporting template for the future. We drew on the information and findings from the previous stages to help identify any information gaps that could be filled in future reporting.

Ethical considerations

We conducted the interviews in an ethical manner and according to recognised quality standards, including the Australia New Zealand Evaluation Association's Evaluation Standards for Aotearoa New Zealand. We ensured that:

- all participants were fully aware of the purpose of the interview and how any information they provide, or information pertaining to them, will be used (for example, interview notes)
- all participants gave fully informed verbal and written consent, and
- we upheld safeguards for privacy and sensitive material.

Participants were provided with koha (grocery voucher and kai). We also provided them with a factsheet of support services, should they require it following the interview (for example, in case they felt triggered by some aspect of the conversation).

The household interviews were confidential, and we have used information from their stories to prepare anonymous case studies.

The MURAL boards created during the provider workshops, along with the notes we took during these workshops, were held confidential among the participating providers and the MartinJenkins evaluation team. The themes from the discussions, along with any quotes, are presented as anonymous and non-identifiable.

Findings

Context matters

Energy education occurs within each household's complex context

Achieving warmer, drier homes is complex, and energy education occurs within an interconnected set of factors relating to a household's circumstances and housing situation. It is not a simple matter of providing generic advice on how to save power or keep warm.

Through our case studies and provider workshops, we learned that a family's house itself may be in very poor repair. For example, it may have rotting timbers; holes in the walls, floor or roof; leaks in the roof; blocked drainage, causing dampness and leaks; and windows that are broken or don't close. Families may have relied on open fires or log burners that are damaged or non-compliant.

We also found that households can be large and fluid, with various members of extended family coming and going. It can be hard to corral everyone into consistently engaging in energy-saving behaviours.

Many whānau experiencing energy hardship are also facing other significant challenges, such as ill-health (which may or may not be related to the home environment), working multiple jobs, mental health problems, addictions, and poverty. For households experiencing multiple, intersecting hardships, making space to think about energy bills and how to keep their home warm and dry can be a low priority.

Poor-quality housing stock is a major systemic problem

Poor-quality housing stock is a major systemic problem across all tenure types, and including social housing. In some cases, deep retrofits are needed to achieve a warm, dry home. This finding is consistent with previous New Zealand research.[2]

Owner-occupiers may be struggling to afford the scale of repairs needed. Some home-owners have inherited a family home that has not been maintained over many decades. The scale of repairs needed can be overwhelming and unaffordable.

When landlords are not complying with Healthy Homes Standards, renters can be reluctant to approach the landlord for fear of being evicted.

The advice and support provided through SEEC will not on their own lift the quality of the housing stock – concerted and joined-up efforts across government are needed.

[2] For example, Aditi Bunker et al (2021) "Housing structure and occupant behaviour to increase the environmental and health co-benefits of housing: Insights from expert interviews in New Zealand", *Indoor and Built Environment* 2021, Vol. 30(4) 535–553.

SEEC providers deliver variegated services

We found that SEEC providers deliver a range of different services, which each include some combination of the following.

SEEC energy education for households may include:

- advice on appropriate energy use and keeping the home warm and dry
- understanding their power bill
- helping them check they are on the right electricity plan
- helping them check they are with the lowest-cost electricity retailer
- advocacy support in dealing with their energy retailer (for example, around debt)
- community hui, events or workshops, and
- information material (such as brochures).

SEEC low-cost devices can include:

- draught stoppers
- scoopies
- temperature and humidity monitors
- LED lightbulbs
- blankets
- sensors
- timing switches
- curtains
- shower timers
- low-flow shower heads
- bubble-wrap "double glazing", and
- heaters.

Other SEEC activities can include:

- minor repairs such as fixing leaks, holes in walls, and broken windows, and installing window latches
- identifying and addressing electrical safety problems
- adjusting the hot water cylinder temperature

- hot water pipe lagging
- cleaning heat pump filters, and
- training home energy assessors.

Some providers also **refer people to, or themselves provide, wrap-around services**, which may include:

- Healthy Homes Initiative
- Warmer Kiwi Homes
- ventilation (such as extractor fans)
- curtain banks
- financial mentors or coaching, or budgeting support
- liaising with WINZ to check the household is receiving their full and correct entitlements
- tenancy advocacy, including liaising with landlords about necessary repairs
- community law organisations
- health agencies, and
- Kainga Ora.

Providers have different kaupapa and service delivery models

We found that different SEEC providers have different areas of focus and kaupapa. For example, some focus on minor repairs to improve the warmth and energy efficiency of the home, while others focus on electricity usage (including checking the household is on the right plan and understands their power bill).

An established training programme offers specialised Home Performance Advisor (HPA) training and certification.[3] Some (but not all) providers use HPA-trained staff to deliver their home energy assessments. There is no data on any differences in the quality of advice, or household experiences and outcomes, between trained and untrained advisors delivering SEEC services. Through our case studies and our interactions with providers, we did observe some apparent inconsistencies in advice. For example, across case studies 7 and 8 there was differing advice about whether oil heaters are an appropriate heating source. Future research or audits could investigate the consistency and quality of home energy assessments and advice, and inform whether action is required (such as making it mandatory for all SEEC advisors to be qualified.

[3] See Home | HPA (homeperformanceadvisor.org.nz).

There is also a spectrum of providers, from those who focus just on energy education and devices, through to those who also organise wrap-around support and follow-ups (using a combination of SEEC funding and funding from other sources).

The differences in delivery models mean that the nature, and possibly the quality, of assessments varies across providers. Providers who deliver more comprehensive services will enable greater benefits for recipient households. This differential is captured in our approach to the CBA (which is discussed below).

CASE STUDY 1

Moral support to make changes

Key take-aways

MORAL SUPPORT	GETTING THE WHOLE FAMILY INVOLVED	HOUSE MAINTENANCE
The moral support to keep going with changes that would improve the warmth of the home was hugely appreciated.	Becoming informed with ways to be energy efficient resulted in setting routines for the whole family in terms of electricity use.	Where housing maintenance has seriously lapsed it can be difficult for homeowners to quickly bring the house up to healthy standard. Advice on general ongoing maintenance is helpful.

Context

For this case study, we visited a householder living with his four children in a semi-rural town. He inherited the house from his parents and he and his children have been living in it for three and half years. It is a four-bedroom house. Previously they had lived in emergency housing.

While the householder has been working to improve the house, it still needs significant work. There are holes in the wall, rotten window frames, and the roof has serious leaks. The house does have underfloor and ceiling insulation, which was installed before they moved in.

The main source of heating in the house is a fireplace, but the householder said firewood is difficult to access because of the cost.

The householder has a health condition. Spending time together as a family and having a home that has family "vibes" is important to him.

How they became aware of the SEEC services

The householder became aware of the provider via a family member who found out about them through a community group they belonged to. The family member was having an assessment done and the householder was there at the time. He got the details from the assessor and organised for them to also visit his home.

The visit occurred promptly after that. The householder indicated that his main objective was to get advice and suggestions on saving money by reducing energy costs and making the home warmer and easier to heat.

What the SEEC provider did

When the provider visited, they completed a full house assessment.

Following the assessment, the provider worked through several activities to address issues they observed. This included:

- **Installing thermal-backed curtains**, **LED bulbs, and smoke alarms** – All curtains in the house were replaced. New LED bulbs were fitted, and new smoke alarms provided.
- **Repairing window latches** – Some of the window latches in the house weren't working properly, meaning the windows couldn't be closed, so the provider installed new latches.
- **Fixing serious holes in the roof and walls** – The provider has fixed one of the more serious leaks in the roof and the householder is in the process of fixing the other. The provider has supplied gib and putty for the householder to fix a hole in a wall.
- **Insulation checks** – The provider assessed the insulation for damage and effectiveness. They re-laid the insulation in the ceiling but found no major problems with it otherwise.
- **Checked the hot-water cylinder** – A check of the cylinder found that the temperature was too high. The provider reduced the temperature and gave advice about keeping it at that temperature to save power.
- **Advice and guidance on energy use** – The assessors provided a booklet on saving electricity and talked through several tips, including when to use power based on tariff pricing. This has resulted in the householder setting times for TV watching and rules for the family on when and how long to charge phones. The householder found this particularly insightful as he had not really thought about these options before. Although the householder saw the benefit in having the booklets, he wondered if people didn't have time to read through them and if short videos on social media would be more effective.

The difference it has made

The householder was very thankful for the service and for the provider helping them out.

He said the new curtains hold the heat in the house much better than the previous curtains.

The householder had recently received his latest electricity bill when we spoke to him, and he said it had dropped from usually being $320 to about $200. He attributed this to lowering the hot-water cylinder temperature and putting rules around charging devices. He said the money saved could reward the whole family for their efforts with things like trips to the pool or local take-away food.

The householder also indicated that one of the biggest positive impacts was the provider giving moral support and pushing him to carry on with the changes. The householder felt this was useful, especially when he was struggling with motivation and dealing with being a sole parent and poor health.

The householder is investigating further repairs to gutters and installing a more energy-efficient heating solution.

SEEC delivers benefits in several ways

Through our primary research for this evaluation, we found that benefits are generated by SEEC in the following ways:

- SEEC activities, including providing energy education and advice, providing devices, and doing minor repairs, deliver **unique value in their own right**. These benefits are explored in detail in the case studies presented in this report.
- SEEC also **generates additional referrals** that would not have otherwise occurred (for example to HHI). Through our discussions with households and providers, we found that SEEC is reaching households that were unaware of the other support available, and is able to refer them in so they can access a greater range of services.
- The energy education provided through SEEC also helps **unlock additional benefits from other programmes**. For example, showing people how to use their heat pump correctly helps maximise the benefits of heat pumps provided through other programmes (such as Warmer Kiwi Homes).

Community hui, workshops, and events have some education value, but this is more limited. A key benefit is providing a conduit to in-home assessments. They also help build trust in local champions.

CASE STUDY 2

Small changes benefit health and wellbeing

Key take-aways

HEALTH	ENERGY EDUCATION	AWARENESS
Advice on heating types and ventilation have helped improve health conditions.	The busyness of people's lives sometimes hampers their ability to take on a lot of information at once.	Outreach to existing community hui and groups is an effective way of raising awareness of the services.

Context

For this case study we visited the home of a couple living in provincial Aotearoa New Zealand. They rent the three-bedroom home and have lived in it for 12 years.

The house was relocated onto a subdivided section just before they moved in and is not ideally orientated to make best use of the sun. The relocating of the house damaged some of the panels around the bottom of the house and there has since been some subsidence in parts of the house.

The roof has recently been redone as it had holes in it. Underfloor and ceiling insulation was added at the same time. There is a wood fire in the lounge, which heats that room effectively but doesn't necessarily warm the rest of the house. They want a heat pump down the other end of the house to heat the bedrooms, which can get very cold.

There is black mould growing in some parts of the house, and they regularly clean and remove this.

Power bills were a concern when they first moved into the house, as they had two power bills come in for over $1,000. The problem turned out to be with the meters. The landlord resolved this, but the shock of the large bills remained.

The couple feel that they have a good relationship with the landlord, who is responsive to their requests most of the time.

How they became aware of the SEEC services

The provider spoke at a local kaumātua group that meets weekly, and which the couple belongs to. At the hui the householders spoke to the provider's representative about their home being cold and having problems with condensation and black mould. They arranged for the provider to do a home visit. They asked for the focus of the visit to be on warmth and providing tips on things they could do themselves.

What the SEEC provider did

An assessor from the provider visited the couple's home and did a full home assessment, advising them on heating options and house repairs, and providing energy-efficient lighting and cleaning products.

Following the assessment the provider worked through a number of activities to address issues they observed. This included:

- **Heating advice** – The couple was using a portable gas heater. The assessor told them about the health issues associated with gas heating and costs associated with a portable gas heater. They also provided advice on the importance of ventilation, especially when moisture levels reach 60% or more.
- **Advice on energy efficiency** – The assessor offered tips on reducing energy use by turning appliances off at the wall and unplugging them. They also gave the couple some pamphlets on energy efficiency and links to a website that provided more tips.
- **Minor repairs and improvements** – Since the assessment the provider has done a number of small repairs, including fixing draughts from windows and doors by replacing or installing draught strips, planning a bedroom door that wouldn't close properly, and installing a latch on the bathroom window that couldn't be closed.
- **Cleaning products and tools** – The provider gave the couple masks and gloves for cleaning the mould, and LED bulbs. They also left them a thermometer and moisture reader that the couple have placed where they can easily monitor them.
- **Providing information for the landlord** – During the assessment, the provider highlighted some improvements that should be made to the house, so that it meets the Healthy Homes Standards. These included replacing loose boards around the exterior of the house, refreshing window putty, and fixing some electrical issues. The assessor prepared an itemised list of what needed to be done and has sent that to the landlord on the householders' behalf. The assessor offered to follow up with the landlord, but the couple are comfortable doing this themselves.

The difference it has made

The couple were very positive about the experience and thankful for the things that were fixed and for how thorough the assessment was.

They felt the advice about airing the house out was very helpful, and that this has had a positive impact on their health, particularly as one of them has COPD and asthma. They said they now have more of a focus on monitoring where mould and condensation appear and addressing them quickly.

The couple did admit that they didn't take onboard everything that the SEEC provider told them about energy efficiency, that it "*went in one ear and out the other*." This was partly due to other priorities in their lives that needed attention.

CASE STUDY 3

Being informed leads to better decision making

Key take-aways

INFORMED	APPLICATION PROCESS	VERBAL INSTRUCTIONS
The householder said one of the most positive impacts of the service was getting better informed and so making better decisions.	Not knowing how to access and complete application forms is a potential barrier to accessing the service.	A manual was provided with a new heater, but verbal instructions may have helped the householder to make better use of it.

Context

For this case study we visited a retired person living alone in a small provincial town. The house was now in his name after being passed down from his parents. It was the home he grew up in, and after some time he had moved back into to care for family. Until recently, one of their adult children was also living with them.

The householder said the house was in a poor state of repair, lacking exterior paint, with significant rot in the window frames. Inside the house there were holes in the wall. Heating had consisted of an open fire but that was now not used following damage from an earthquake. They had used gas and kerosene heaters, or just "*rugged up*" with more clothes on when it was cold.

How they became aware of the SEEC services

The householder approached Te Puni Kōkiri for support to repair the house. He was given a 10-page form to fill in, and he enlisted the help of their nephew to complete it.

Through this process he learnt about the support offered by the SEEC provider, which required filling in another form. The householder said he would have struggled with the forms as he was not computer savvy and didn't know what words to use in answering questions. He felt there was no-one to call if he needed advice on it.

When he submitted the form, he selected the first SEEC provider on the list and organised an assessment visit.

What the SEEC provider did

Two assessors visited the householder and did a thorough assessment of the home.

Following the assessment, the provider worked through several activities to address issues they observed. This included:

- **Advice about warmer homes** – The assessors explained the health issues that cold air can cause. The householder was not sure if not sure if they spoke about energy use, but thought they probably did, it just didn't sink in.
- **Information and tools** – The provider gave the householder a thermometer that shows the temperature and whether it's in a healthy range. The householder has placed it on the shelf in the dining room so that he can monitor it frequently.
- **Supplying an electric convection heater** – The householder was using a fan heater for warmth. The provider gave him an electric convection heater along with the instruction manual. The householder has tried reading the instruction manual but couldn't understand much of it and felt that verbal instructions might have been better. He did recall the assessors telling them not to have it on a high setting.
- **Installing an extractor fan in the bathroom** – Apart from windows, the bathroom did not have adequate ventilation for moisture, so an extractor fan was installed.
- **Installing underfloor insulation** – The house did not have existing underfloor insulation, so the provider arranged for this to be installed.
- **Repairing window frames** – Some repairs were made to significantly damaged window frames and the householder has been supplied with primer and paint to complete the task.

The provider has followed up frequently after the assessment. Now that budgets have been confirmed, the providers now say they are able to continue with installing thermal curtains.

The householder is also exploring how he can get assistance with repairing the guttering and either a heat pump or wood burner installation.

The difference it has made

The householder was very positive about their experience with the provider. He said that, since the visit, positive things have happened with the house and he feels more informed and so can make better decisions, particularly with what he has learned about heating and the healthy temperature for a house.

The householder said that while their electricity costs have increased recently, they are still less than what they were when there were two of them living in the house, and that the increase is likely due to prices rising generally.

The householder commented on the positive difference the extractor fan in the bathroom had made in reducing condensation.

He regularly tells others about of the SEEC service, as he sees a lot of people in similar situations with the same needs.

To maximise value, energy education needs to be provided as part of a package of support

The unique value of SEEC has limits. To maximise benefits, energy education needs to be delivered as part of a comprehensive assessment of household circumstances, along with tailored advice, wrap-around supports, and follow-ups. As described above, the other support needed may include insulation, an efficient heating source, ventilation, repairs, curtains, budgeting, and advocacy.

Similarly, other support such as heat pumps require education on appropriate energy use to unlock their full benefits. A common theme in our discussions with providers, case study households, and experts was that many people are unaware of how to use their heat pump correctly.

Heat pumps are an energy-efficient heating source when used correctly. But used incorrectly they are inefficient and can result in unexpectedly large power bills and unintended negative outcomes. For example, some people mistakenly think that because heat pumps are "efficient", this means they can run them 24/7. Or they set the temperature too high to try to warm the house faster. They later receive a large power bill, which comes as a shock and can put them off using heat pumps at all. If they have no alternative heating source (for example if their log burner was decommissioned when the heat pump was installed), families can end up colder than before, or crowding into one room (which can lead to health problems). This could have the perverse impact of reducing the mental and physical wellbeing of families.

Enablers to realising benefits

Through our primary and secondary research, we identified the following enablers for realising the full benefits from SEEC.

- Consistent with the literature (such as Rotmann, 2022 and Mundaca et al 2023), we found that **trusted local connectors** are important for generating referrals to SEEC providers. These people are trusted "messengers" from within communities, such as local kaihautū or pastors[4] and other community-based social services providers with whom SEEC providers have built collaborative relationships. Some new and developing providers are struggling to reach into communities to access households in need of SEEC services.
- Relatedly, it is important for SEEC providers to **build trusted relationships** with whānau. It can take several visits over an extended period to build the trust needed to be invited into someone's home and gain the full picture of their household circumstances and needs. The cost to providers of completing these follow-up visits may be funded from multiple revenue sources.
- As indicated above, **in-home visits** are important for understanding the context and providing tailored advice. These take time, including planning, travel, and doing a comprehensive

[4] Dr Sea Rotmann (2022) *ERANZ EnergyMate Evaluation Phase 3: Analysis and report*, p. 39.

assessment. Some providers told us they may travel several hours to reach whānau living in remote areas.

- People need **"bite-sized" information** that they can absorb. Several of the whānau we spoke with were not able to understand or retain all the information that was conveyed during their initial SEEC visit. Multiple visits can be needed to effectively convey a large amount of complex information.
- **Follow-ups** are important for cementing changes in behaviour. They can help address problems people are facing in actioning the advice, and reinforce earlier messages that may have been forgotten or misunderstood. Follow-ups can be in-person or over the phone.
- People also need information in a **variety of formats** – some people prefer verbal and some written information. Written material such as brochures should have translations.
- **Tangible cues** such as thermometers and moisture monitors (hygrometers) seem to be particularly effective. Several of the whānau we visited had these on display and found them useful reminders for taking action such as airing out the room.[5]
- **Quick and visible results from actions**, such as seeing less mould, can encourage whānau by showing that their home improvements and behaviour changes have been effective.
- **Having a household "champion"** is useful for reinforcing messages and encouraging behaviour change. This can be particularly helpful in large, fluid households where people come and go. Children can play this role.

[5] We recognise that there may have been some Hawthorne effect occurring in this regard.

CASE STUDY 4

Providing educational materials helps educate everyone in a household

Key take-aways

OCCUPANCY	HEATING TYPES	HOUSING STOCK
Who is living in the house can vary over time and at short notice, meaning that energy education needs to be ongoing. Providing pamphlets to the household was useful for sharing advice to everyone in the house on energy use and heating.	Increasing householders' awareness of the problems with gas heating and assessments of fireplace heating activates change in heat sources, but lack of alternative heating solutions is a problem.	Houses built on land susceptible to flooding and not positioned to make best use of sunlight are more difficult to keep warm and dry.

Context

For this case study we visited and spoke to one of the co-owners of a family home in a small rural settlement. The home was passed down to her and her siblings, who all continue to have a share in the home. At the moment, between six and eight people live in the home at any one time, including three generations of the whānau. Wider family members come and go when they are in the region.

A sleep-out provides a room for part of the family, with a fan heater for warmth. Inside the house the fireplace is no longer in use because it is damaged. This meant in the past they tended to use gas heaters for warmth – placing them at one end of the hallway so that the heat would travel to the main living area and the bedrooms.

The house is built on land susceptible to flooding, and while being built on high foundations and having both underfloor and ceiling installation, it is prone to dampness. One side of the house that doesn't get much direct sunlight tends to have mould, which the family cleans and paints over.

How they became aware of the SEEC services

One of the owners of the home attended an event held at the local marae that included different representatives from health, medical, social and employment services. The provider had a stall there and attendees were able to fill in an application form for a home assessment.

What the SEEC provider did

The provider visited the home to do an assessment and produced a report on improvements that could be made.

Following the assessment, the provider worked through a range of activities to address issues they observed. This included:

- **Advising on and addressing condensation** – The assessment found that condensation on windows and windowsills was an issue. The windows had venetian-style blinds. The provider noted that these were not as effective at keeping warmth in, so arranged and installed thermal-backed curtains. The provider reinforced the importance of opening windows for air circulation and wiping down any moisture that appeared on the windows and windowsills.
- **Repairing roof nails and guttering** – The assessor noted that nails on the roof had either loosened or come out altogether, so they replaced these and filled in any holes in the roof. This stopped water from coming into the house, particularly around the damaged fireplace. They worked with the family to get the guttering repaired, and the family is arranging for the gutters to be cleaned so the water can drain.
- **Getting a heat pump** – There are plans to remove the fireplace that is no longer in safe working order and replace it with a heat pump. As part of the process of getting this, the provider indicated they will also talk about energy consumption and effective use of the heat pump.
- **Educational information and guidance** – The provider left a selection of educational pamphlets that provided advice on heating.

We also talked about the hot water going cold at night and that she wasn't sure why this was. It may be due to increased use at that time. This was an area that she will seek more advice on.

The difference it has made

In our conversation, the householder expressed gratitude for the work of the provider to make her home warmer.

While the family was already vigilant with removing moisture on the windows, they have noticed a positive difference since the curtains have been installed (less condensation, and warmth being kept in the house).

The person we spoke to has found the educational pamphlets they were given particularly useful for sharing with other occupants in the house, and for the kids to read, so they could learn what to do for better heating and power use.

CASE STUDY 5

The health of tamariki is a motivation for action towards warmer, moisture-free homes

Key take-aways

TAMARIKI HEALTH	TALKING WITH LANDLORDS	AWARENESS OF THE SERVICE
The wellbeing of tamariki is a driver for seeking advice and information on improving heating and reducing moisture in homes.	Providing written advice that tenants can discuss with landlords is a useful tool for prioritising improvements.	Social media can be an effective way of connecting with people that require these services, followed by prompt responses from the provider.

Context

For this case study, we met a mother and her children in their rented home of five years, in provincial New Zealand. The property is located next to the landlord who they have a good relationship with. The landlord has been making general improvements to the home throughout the time the family has lived there. The mother lives in the home with her partner and three children. She feels really lucky to have a positive relationship with the landlord.

The whānau uses a log burner and oil heaters as the main sources of heating.

How they became aware of the SEEC services

The main motivation for seeking advice about heating was because the household noticed that one of the children's bedrooms felt very cold and damp. She was concerned about this, so set about seeking advice to improve the situation. She was also motivated to explore getting a heat pump.

The householder saw an advert from a local SEEC provider on social media that included contact details for a heating and energy adviser. She had wondered about getting a heat pump installed at one end of the house and whether the service could help with that. She gave them a call and arranged a visit for a home assessment the following week.

What the SEEC provider did

The provider visited the family's home to do an assessment. The assessment focused on the heating and moisture of the house.

Following the assessment, the provider worked through a number of activities to address issues and observations. This included:

- **Identifying issues with windows** – The assessor investigated the aluminium window frames in the house and used a thermal camera to see where moisture and draughts might be coming in. This indicated that the poor condition of the window seals was probably a source. The assessor also found that some of the windows had mould growing on them, and that patches of insulation were missing.
- **Checking the children's bedrooms** – The assessor used a moisture and temperature meter to check which of the bedrooms were coldest and talked to the householder about which rooms get condensation. They found that one of the children's bedrooms had high levels of moisture and that the windows in the room had green moss growing on the outside and that water was getting in through the seals. They also noted that there was no ground vapour barrier, which may be contributing to dampness. This was immediately concerning for the family, so they moved the child out of the bedroom and prioritised resolving the dampness issue.
- **Tools and advice to address issues** – The family was given a moisture reader to monitor dampness levels, a scoopy to remove condensation, and cleaning products for removing mould. They were also given a thermometer and advised to put it in the most used room in the house, and told that oil heaters were effective for continuous warmth.
- **A letter for the landlord** – The assessor wrote a letter with recommendations that the householder could use in talking with the landlord.

The difference it has made

The householder was impressed that the SEEC provider's assessor was efficient, got straight to the point, and left solutions.

Although the provider didn't make any direct repairs to the house, the householder found the educational parts of the service helpful. She felt the service is particularly useful for whānau that have kids and are of her generation (she is in her 30s), as they are not aware of the impacts of moisture in homes. She felt that her generation tended to be more focussed on how to keep warm and how much this will cost.

The householder felt the assessment identified the areas the family needed to prioritise, including resolving the dampness, for the health of the children. She now feels it makes sense to have a watertight house. While a heat pump is still desirable, her priority became finding out what was making the rooms damp and resolving that issue.

The assessor has since been in touch to check on the family's progress. The householder has provided the letter and recommendations to the landlord. She felt that having the assessor providing the letter was a useful way to identify improvements.

Barriers to realising benefits

We identified a range of barriers to achieving the potential benefits from SEEC. These barriers exist at individual, whānau, institutional, and societal levels.

Barriers to accessing support

Barriers to accessing SEEC support include: **whakamā**, **distrust**, **lack of awareness** of available services, and **lack of time and cognitive bandwidth** (due to other pressing concerns).[6]

Application forms can also pose a barrier for people who find the written questions challenging; and those who are not computer-literate may struggle to complete online forms. Two of the case-study households we spoke needed help from another family member to complete the application form for SEEC services. One said that without this support they would not have been able to access the service.

Barriers to making changes

Barriers to making changes include:

- The **upfront cost of improvements** – As discussed earlier, maintaining and improving the home can be a challenge for both renters and homeowners. Where home maintenance has been deferred for many years, the scale and cost of the necessary repairs can be significant and overwhelming.
- **Not understanding the advice** – Several of our case-study households said they did not absorb all the information and advice given to them during their home energy assessment. There is a lot to take in all at once. As explained above, multiple follow-ups may be needed to reinforce the messages and cement all the actions and behaviour changes needed. Verbal and written communication also needs to be appropriate for households' language and culture.
- **Limited information or misinformation** – People are often starting from a base of low "energy literacy" (through the course of this evaluation, we learned things ourselves). A common misunderstanding we observed was around how to use heat pumps correctly. We heard from our case-study households that some heat pump installers didn't adequately explain how to use them, or just left an instruction manual that was too difficult to understand. Many households also do not understand how to read their electricity bills or know if they are on the right plan.
- **Empowering all whānau members to participate** – Getting everyone on board with consistently implementing behaviour changes can be a particular challenge in fluid households, where whānau members are coming and going.

[6] Dr Sea Rotmann (2022) *ERANZ EnergyMate Evaluation Phase 3: Analysis and report*; SEEC provider reporting to MBIE.

- **Unsuitable devices** – Several providers and experts told us that the LED lightbulbs don't fit in all homes, including in some social housing (where there are down-lights).
- **The risks of a "little bit" of education** – Titbits of information can be powerful, such as learning about the importance of warming the home above a certain temperature to be healthy. However, we also learned that receiving small bits of knowledge from energy education can lead to unintended negative effects, if not paired with wrap-around support such as repairs and insulation. For example, if a family cannot achieve the healthy temperature because they lack a heating source or have no insulation, they may become anxious about their children's health, without the ability to take action, which can have a negative impact on their mental wellbeing.

Systemic barriers exist to achieving warm, dry homes

As explained at the start of this chapter, the poor quality of New Zealand's housing stock is a major systemic barrier to achieving warm, dry homes. While the energy education and other support provided through SEEC have value in themselves, the full potential value of these services cannot be achieved when the houses themselves need extensive improvements to meet minimum standards.

CASE STUDY 6

Doing what is affordable to improve heating

Key take-aways

HEATING ADVICE	AFFORDABILITY	ENERGY SUPPLIERS
Clear education and advice on heating options is an important factor for those who have heaters.	Where a household doesn't quite fit the eligibility criteria for high-cost interventions, they are probably not able to make beneficial changes to their home heating.	People may not switch electricity providers because they feel the benefits are not worth the perceived inconvenience of switching.

Context

For this case study we visited the three-bedroom home of a couple with two teenage children in an urban centre. The couple has owned the home for seven years. They moved to New Zealand 16 years ago. One of the children has a health condition that has required frequent trips to hospitals for treatment, and this has used much of their savings.

The house has five wall-mounted radiator heaters, which were in the house when they bought it. Three of the radiator heaters have not worked while they have owned the house. Quotes to get them repaired were very high so they have not been repaired. The family uses the two that work.

The couple installed a second-hand heat pump in the lounge within two years of buying the house. They don't use the heat pump often, as they find it too expensive to run.

How they became aware of the SEEC services

The householders got the contact details for the provider through a family member who works in local government. They were sent links to the provider's website, including the forms to fill in for applying for an assessment. The householder filled in the forms, which they said were very simple to use. The provider promptly got in touch by phone to arrange a visit after the form was submitted.

What the SEEC provider did

The provider visited the house and completed a full house assessment.

Following the assessment the provider worked through several activities to address issues they observed. This included:

- **Replacing curtains** – The assessor noted that the existing curtains were not thermal-backed and didn't go all the way to the floor. The assessor told the householders that curtains that went all the way to the floor were better for keeping warmth in and draughts out, and with the couple's agreement, arranged to replace and install all the curtains.

- **Giving advice about windows and ventilation** – The assessor noted that the aluminium windows, being single-glazed, were a likely source of heat escaping and suggested the householder investigate double glazing. The assessor noted that the windows had condensation on them. The provider gave the family a condensation remover (window scoopy) and gave them advice about ventilating the house, including opening windows for air flow, to reduce the moisture in the house. The assessor also noted places around the window frames where there was mould and gave advice on cleaning these regularly. The family was given mould cleaners, a bucket, and cleaning cloths to help with this.
- **Monitoring moisture and temperature levels** – The assessor gave the householders a moisture and temperature reader so the family could monitor these. The assessor advised them on what temperature to aim for in the house. The householders indicated they tend to use it for temperature more than moisture. When we visited, the device was sitting in the lounge on a shelf where it could be read easily.
- **Insulation checks** – The assessment included checks in the ceiling and underfloor areas for insulation. The house does not have any, so the assessor suggested the householder investigate ways to get insulation installed. This included advice to apply for a community services card so that the householders could get financial assistance with putting insulation in. The householders subsequently applied for the community services card but were not eligible. They currently do not have plans to get insulation installed as they consider it is too expensive at this time.
- **Installing smoke alarms** – The assessor noted that the house did not have any smoke alarms, so installed two smoke alarms.
- **Supplying heaters** – The provider gave the family two oil heaters and indicated that these would use less power than the radiator heaters. The assessor also said that the oil heaters should be kept at a moderate heat for more energy efficiency. The family now tends to use the two oil heaters and the radiators that do work, as they feel they are cheaper than the heat pump. The assessors did tell them to use the heat pump but to set it at 22 degrees.
- **Energy efficiency advice** – The householders noted that their electricity bills were usually $400 or more. The assessor discussed this with them and suggested exploring changing power companies to save money. The householders did investigate this but found that it would save $8-$10 a month which they felt wasn't worth it the hassle of changing suppliers. Since the family have had the new curtains put in and the oil heaters, their electricity bill has reduced to around $385-$390.

After the provider visited, the householders have had some conversations with the whole family about saving electricity and how to use the heaters.

The provider has kept in regular contact to check in on how the family are doing. They are not getting anything else done heating-wise as they are not eligible for the subsidy and can't afford anything else at the moment.

The difference it has made

The householders said the biggest difference has been due to the curtains, as they reduced draughts and kept warmth in.

The family's health has stayed relatively the same (noting the eldest child's condition).

CASE STUDY 7

Turning a sub-standard rental into a whānau home

Key take-aways

WHĀNAU WELLBEING	WORKING WITH LANDLORDS	MORAL SUPPORT
The SEEC services have helped improve the physical and mental wellbeing of the whole household.	Support to communicate and work directly with the landlord has resulted in action that was previously not as forthcoming.	Supporting the householder to make changes to heating and energy use when they have felt isolated has been valuable.

Context

For this case study, we visited a sole parent in her rented property in a main urban centre. She lives in the house with their three young children and a teenage boarder. They have been in the house for four months. One of the kids suffers from asthma and one has had pneumonia.

The house has three bedrooms, with the lounge also currently used as a bedroom. That room has a small heat pump in it, which was the only built-in heating in the property.

The house is on a slope and has a lean. When she moved in, the householder noticed problems with the house straight away, including the hot water not working and needing replacing, mould around the windows and on some of the walls in the bedrooms, draughts coming in from gaps in the window frames, and some of the rooms not having curtains. In the rooms that did have curtains, none of the curtains reached the floor, and some did not meet when pulled closed.

Before moving to this rental, the householder was in transitional housing. When she was offered the home the tenancy agency that works on behalf of the landlord provided a "Healthy Homes" certificate, but the householder noticed it was the standard template printed from the website, rather than one that was specifically about this house.

The householder did not want to move into the house but felt she had no choice. On moving in, the householder's family all got sick within a week because it was so cold.

How they became aware of the SEEC services

The householder has prior experience with the provider, who had provided unrelated assistance in a previous housing situation. When the householder moved into this rental, she did not feel that it was up to standard (Healthy Homes) so contacted the provider again to get them to assess the house.

What the SEEC provider did

The provider visited the rental and assessed the house. This included going into every room, checking windows, and testing the temperature and humidity levels. The assessor also reviewed the outside of the house. The provider is in the process of organising someone to check insulation (underfloor and ceiling).

Following the assessment, the provider worked through various activities to address issues they observed. These included:

- **Curtains and window repairs** – The assessor supplied new full-length, thermal-backed curtains for the whole house. The person who installed the curtains also sanded down all the windowsills and ledges and repaired and filled in the gaps, and then repainted them.
- **Advice on ventilation and bedding** – The assessor showed the householder the best places to position beds in the bedrooms and advised them about ventilation to reduce mould. The provider also supplied a bucket with cleaning products, including disinfectant, cloths, and a window moisture remover.
- **Heaters and temperature and moisture monitors** – The provider supplied two oil heaters and advised the householder to put it on a medium heat but with both switches on for energy efficiency. The assessor also advised on the best place to position the heaters. The provider also supplied a temperature and humidity monitor, which the householder actively uses to check humidity and temperature.
- **External assessment of the house** – The assessors reviewed the exterior of the house and found it did not meet standards because it was missing most of the outboards (the lower panels of the house cladding).
- **Communicating with the landlord** – The provider asked the householder if they were OK with the provider contacting the landlord or property manager on their behalf, and the householder agreed. The provider contacted the landlord directly about repairing the outboards, and the landlord is now in the process of getting these repaired.

As well as the heating assistance, the provider used their broader service offering to arrange a bed for the householder, as they were sleeping on the floor; smoke alarms, as the house did not have any; a mattress for one of the kids, as they one they had was substandard; and for locks for the doors, as when the family moved in they couldn't lock the house. The assessors also brought kai with them when they visited.

The provider has kept in regular contact by phone to check how the family are doing.

The difference it has made

The householder is extremely appreciative of the service. She said she had gone from not wanting to be in the house at all to getting it to where is has a whānau feeling. They said the kids are now happier because they are getting sick less often, and the house is warmer. The householder felt all this wouldn't have been possible without the provider's help.

The householder said the oil heaters have made a big difference to the warmth of the house. The house is on electricity, and gas for the water heating. The householder said that before the provider helped, the bill for electricity, gas and internet was between $600 and $700, but that their last bill was $449. The householder attributes this to not having to use the heat pump and fan heater as the oil heaters warm the house, and to the new curtains and the window frames and sills being fixed.

The householder appreciated the provider working with the landlord directly, and said this has resulted in the landlord taking action to resolve issues.

Providers' experiences

The SEEC team engages well with providers

Providers told us they find MBIE's SEEC team to be friendly, helpful, and flexible, and that the team is willing to listen, adapt, and trust.

> I'm a *"big fan of the SEEC team"*. [SEEC provider]

While most providers have experienced good communications with the team, some would like to be able to contact them directly by phone to discuss issues (rather than email exchanges through the team's email address).

COVID was challenging

COVID-19 posed numerous challenges for providers. Providers' reports to MBIE cited many difficulties, including households being unwilling to let people into their homes, providers being unable to run workshops or hui, difficulty with phone-based services, staff shortages, and difficulty sourcing devices because of supply chain problems. The combination of these challenges limited the reach and impact of SEEC through the COVID period.

Desire for greater collaboration

In the workshops, providers expressed a strong appetite for greater collaboration with other provides and initiatives, rather than the competitive approach of the current SEEC funding model. Some already collaborate with other initiatives and organisations (such as HHI and WKH) and six are members of the Community Energy Network (CEN).

> "*The contestable process can be unhelpful – while competition can support innovation, we would achieve more through collaboration than competition.*" [SEEC provider]

Providers see value in a more networked approach that would allow them to share learnings and information and avoid reinventing the wheel and recreating resources. They see CEN as a valuable platform for enabling this collaboration.

Providers are also keen for bulk buying or bulk discounts on devices, as they can struggle to source devices and obtain reasonable prices. CEN already acts as a vehicle for some bulk buying.

SEEC funding can unlock co-funding

Receiving government funding can help unlock co-funding from other sources, such as private and commercial philanthropy. One provider explained that it is helpful to be able to approach potential donors by asking them to match the government's funding contribution. Obtaining co-funding allows

providers to reach more households and work more deeply with each household, therefore achieving greater value from the government investment.

The upfront payment is insufficient

SEEC can currently pay 15% of a provider's contract value up front. Providers told us that the size of this payment "*just doesn't cut it*", as it does not cover the costs of bulk purchasing devices and other upfront costs. They noted that other government contracts provided 70 to 75% up front, and that this is "*a huge help*". Community-based providers are typically very financially lean organisations and highly dependent on cashflow. They need upfront funding to confirm and expand their staff arrangements to deliver the SEEC-funded services, and to purchase additional stock.

Multi-year funding would be more effective

A common theme from our engagement with providers is the desire for multi-year funding. They told us that the uncertain and stop-start nature of annual competitive funding makes it difficult to recruit and retain staff, and also difficult to build trusted relationships with whānau (which requires follow-ups and working with them at their own pace).

> "*It's taken 100 years to create this housing issue, and we think we can fix it on a year-to-year basis.*" [SEEC provider]

We recognise that MBIE has been trialling two-year funding with two providers in the current round.

How the current funding round is going

The procurement process for the current funding round was protracted due to the government Budget process, which resulted in a reduction in outyears funding for SEEC. Providers experienced a long wait time between submitting their proposals and being notified of the confirmed outcomes. This created uncertainty, with providers not knowing if they should or could retain staff.

The delays in procurement also truncated the implementation runway. It can take time for providers to gear up their operations once their funding is confirmed, so some were just starting to get out to households when we engaged with them in August.

The delays may mean that providers are unable to reach as many households as planned. This will in turn reduce the benefits that can be achieved during this round.

Another key observation from the current founding round is that households are feeling the pinch of rising electricity prices. Established providers are seeing high need for their services. Some are finding that more middle-income households are experiencing energy hardship, as electricity prices, combined with other cost of living pressures, start to bite.

CASE STUDY 8

A large electricity bill brings about action

Key take-aways

ELECTRICITY BILLS DRIVE ACTION	HOUSEHOLD EFFORT	HEATER OPTIONS
Large electricity bills drive people to seek help from providers and activate changes in their habits.	Education about energy consumption requires everyone in the household to participate. Visits that include meeting with the whole household can help to some degree.	There is some inconsistency with advice around what types of heating is best for electricity efficiency.

Context

For this case study we met with a mother who lives with her three children, the partner of one of the kids, and her nephew. They live in the family house in an urban setting and describe the house as being built on an old swamp area, but being on stilts so it sits well above ground.

The house was passed down to her sister, with the householder having a power of attorney on the property. There is a sleep-out, which the nephew stays in.

The householder had already made a number of energy-efficiency and heating improvements to the house before accessing the SEEC provider. This included installing insulation, which she accessed through previous government subsidies. The hot-water cylinder was also fixed as part of the same programme. The assessment done at that time also suggested replacing curtains, so she had second-hand thermal-backed curtains installed. At the time she explored installing a ground cover for under the house but decided against it because of water pooling under the house.

Twenty years ago, the householder had the fireplace removed as it was not compliant. Since then, she has not had any permanent heating put in.

The householder recently changed electricity supplier after receiving a $1,000 power bill. This resulted in lower electricity costs, though bills were still regularly around $700 per month.

How they became aware of the SEEC services

The householder became aware of the provider's energy education programme through family, and got in touch with them directly. On speaking to the provider, the householder suggested that a representative from the provider attend a community event she was helping organise, connected to Cook Island language week. The provider attended the event and also put content on the group's Facebook page, which resulted in a number of referrals.

What the SEEC provider did

The provider visited the home and met with the whole family. They systematically worked through a printed check-list, doing an assessment and discussing heating and energy use.

Following the assessment the provider worked through a series of activities to address issues they observed. This included:

- **Checking their electricity plan** – With the householder's agreement, the provider contacted her electricity supplier to ensure they were on the best plan for the family. Through this process, she also received a $150 discount on her next electricity bill (likely to have been in recognition from her retailer that she is in energy hardship).
- **Advice on heaters** – The household was using five oil heaters to warm the house. The family described the heaters as being old but still working fine, so they were reluctant to dispose of them. The family also found them useful for drying washing on. The assessor suggested replacing the heaters as they were not energy efficient and showed the householder more energy-efficient convection fan heaters on a retailer's website.[7] The householder subsequently replaced the oil heaters with three convector fan heaters. She is in conversations about installing of a heat pump.
- **Advice on energy consumption** – The assessor told the family about electricity tariffs and when is a good time to use electricity. The family would often leave the oil heaters on all day, and the assessor suggested that the family not do that and showed them how to use timers.
- **Checking the insulation** – The assessor looked at the underfloor and ceiling insulation and suggested the householder get it checked because mildew was appearing. This has subsequently been booked in.

The difference it has made

The householder said it had been useful to get information about different heater solutions, especially as they did not have a heat pump.

The householder indicated that while the whole family listened to the assessor while they were there, they soon forgot some of the advice. This means she finds herself needing to remind the family to turn things off – particularly game consoles (they have two) and phone chargers.

[7] On the face of it, this appears inconsistent with the advice about oil heaters given to the family in case study 7.

Cost-benefit analysis

Challenges with the reporting data

We reviewed the quantitative and qualitative data supplied by providers in their reporting to MBIE. We found that reporting data is very inconsistent across providers, and has a number of shortcomings that affected the CBA.

- **Providers do not clearly distinguish the number of unique households they have provided energy education to.** For example, if a household attended a community hui or workshop, and then went on to receive an in-home visit, this may be counted as two households. Reporting also does not consistently distinguish between households who received in-home assessments, and those who were reached by "any other means" (that is, other than group or community events such as hui and workshops).
- **Providers do not report comprehensive and consistent information about household characteristics**, such as ethnicity, number in household, age of household members, and housing tenure.
- **Outcomes data is lacking.** Providers do not report consistently on actions recommended, implementation or take-up of these actions, and impact of these actions (such as whether homes are warmer and drier, and any net energy savings achieved). Outcomes reporting requires follow-ups (such as telephone surveys or in-home monitors), and not all providers do these. A couple of providers have in-home monitors, but from the reporting we reviewed, this data does not isolate the impact of SEEC or report the average impact per household. Some providers have analysed power bills, but don't report the actual average dollar change per household. There can also be confounding factors (for example one provider also reduced the price of electricity during the period of analysis). An exception is analysis commissioned by ERANZ, which we have drawn on in our assumptions.[8]
- **Not all providers report the amount of co-funding they receive for delivering SEEC, and they are not required to report their compliance costs.** This means we could not assess the total costs of the SEEC programme.

Quantified benefits

The lack of outcomes data meant we had to develop assumptions for quantifying the benefits. To do this, we drew on relevant evaluations of other programmes, discussions with experts, and feedback from providers and case-study households.

[8] Dot Loves Data (2022) *ERANZ: Evaluation of EnergyMate initiative success*. Unpublished report commissioned by ERANZ.

We focused on the benefits that the literature suggests are likely to be the most material.[9] These were:

- the health benefits from a warmer, drier home, the key benefits of which are avoided GP visits, hospital admissions, and prescriptions
- lower electricity bills.

SEEC may help households reduce their electricity bills by:

- switching to a better plan or cheaper retailer
- taking actions to reduce unnecessary power use (such as switching appliances off when they're not being used, and not boiling a full jug of water)
- supplying devices that improve energy efficiency (such as low-flow shower heads), and
- doing repairs that reduce heat loss (such as fixing holes in walls and broken windows).

On the flip side, households may appropriately use more electricity, once they understand the importance of adequate heating for staying healthy. Depending on their pre-existing heating sources, their electricity use may also increase after having a heat pump installed, following a referral through SEEC.

Achieving a warmer, drier home may require a household to use more electricity, particularly in colder months. The net impact on electricity use depends on the interplay of several factors, including the quality of home insulation and other factors affecting the house's thermal envelope, the presence of an efficient heating source, household members' understanding about how to appropriately use heating sources as well as other energy efficiency actions, and whether the household was heating the house sufficiently before the SEEC visit.

Unquantified benefits

A key benefit that we were unable to quantify is the value of SEEC providers' work in building networks, resources, and capacity in their local communities.

Other potential benefits that we have not quantified include:

- avoided days off work and education, due to improved health
- increased employment and reduced benefits payments

[9] Including Nevil Pierse et al (2022) *Healthy Homes Initiative: Three year outcomes evaluation*; Caroline Fyfe et al (2022) *Evaluation of the Warmer Kiwi Homes Programmes: Full report including cost benefit analysis*. Motu Working Paper 22-14; Arthur Grimes et al (2012) *Cost benefit analysis of the Warm Up New Zealand: Heat Smart Programme*. Report prepared for the Ministry of Economic Development; Dr Sea Rotmann (2021) *Case study analysis – Aotearoa New Zealand*. HTR Task Users TCP by IEA; Dr Sea Rotmann (2022) *ERANZ EnergyMate Evaluation Phase 3: Analysis and report*; Luis Mundaca et al (2023) "Hard-to-reach energy users: An ex-post cross-country assessment of behavioural-oriented interventions", *Energy Research and Social Science* 104(2023); Dr Susanna Kelly (2021) *EnergyMate Phase 2 evaluation report*. Report commissioned by ERANZ.

- reduced mortality, and
- the impacts of reduced debt with electricity providers.

In this respect, our estimations of benefits should be treated as conservative. However, based on the literature we reviewed, as well as our discussions with experts, our view is that health benefits is the most significant category of quantifiable benefits from SEEC.

The first three benefits are all health-related, and potentially quantifiable in the future, subject to relevant outcomes data being collected (this is discussed further below).

Evidence on reduced debt with electricity providers requires analysis of households' electricity bills, like that done by Dot Loves Data (2022). However, reduced debt would not be counted in a CBA, as it is essentially a late payment for services already provided (akin to a transfer). Flow-on impacts, such as avoided late fees and reduced stress, could be considered in future research.

Quantified costs

Ideally, we would have looked at the following categories of costs, in order to assess the full economic costs of the programme:

- programme administration, including the SEEC team within MBIE, their overheads, and the costs of the contestable procurement process
- the full costs of delivering the programme
- providers' administration and compliance costs, and
- the deadweight cost of taxation.[10]

Given the data limitations described above, we were unable to quantify providers' compliance costs and the full costs of programme delivery. We included the following costs:

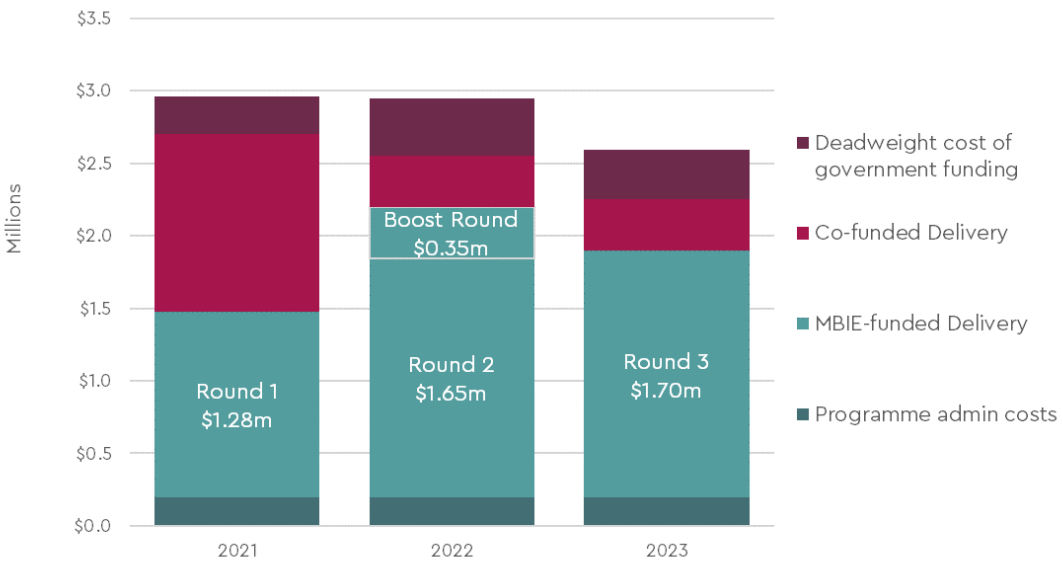
- programme administration (SEEC team budget, including overheads, but excluding any additional costs of the procurement process)
- programme delivery (SEEC Fund and SEEC Equipment and Devices Fund, and reported co-funding), and
- the deadweight cost of taxation (20%).

Costs totalled $2.96 million in 2021, with MBIE funding $1.28 million for programme delivery and co-funding providing an estimated $1.23 million. In 2022, costs totalled $2.95 million, with co-funding providing an estimated $0.35 million and MBIE funding delivery costs of $2.00 million. In 2023, MBIE-

[10] The deadweight cost of taxation is the economic losses, including behavioural changes, that are induced by raising revenue through taxation. Treasury's guide to social CBA recommends including deadweight costs of 20% of the direct costs of a programme.

funded delivery costs were $1.70 million and co-funding comprised an assumed $0.35 million, for a total of $2.59 million.

Figure 2: Annual economic costs associated with the SEEC programme



Source: Provider reporting data and administrative data provided by MBIE

A conservative approach

We have taken a conservative approach to the CBA. We made the following key assumptions:

- We did not include any net savings in household electricity bills in the base case.
- We did not include any savings from lower greenhouse gas emissions (which could arise from lower electricity use during peak times).
- We assumed an average household size of 2.7 (the New Zealand average). Reporting from some SEEC providers indicates that households who receive their services have an average of six occupants. We have included a household size of six in our sensitivity analysis.
- Only those households who were distinguished in provider reporting as receiving in-home assessments were included in our base case as receiving the benefits from these services. This number is a subset of the households who were reached by "any other means" (being other than community or group events).

The conservative nature of our assumptions, together with our excluding of several categories of potential benefits, means the actual benefits from SEEC are likely to be higher than our estimates suggest.

Developing assumptions for incremental benefits

SEEC delivers benefits in several ways

Through our primary research for this evaluation, we found that benefits are generated by SEEC in the following ways:

- SEEC activities, including providing energy education and advice, devices, and minor repairs, deliver **unique value in their own right**. These benefits are explored in detail in the case studies presented in this report.
- SEEC also **generates additional referrals** that would not have otherwise happened (to HHI, for example). Through our discussions with households and providers, we found that SEEC is reaching households that were unaware of other support that was available, and was able to refer them in so they could access a greater range of services.
- The energy education provided through SEEC also helps **unlock additional benefits from other programmes**. For example, showing people how to use their heat pump correctly helps maximise the benefits of heat pumps provided through other programmes.

We lacked quantitative data on the outcomes of SEEC...

The main challenge in the CBA was defining the incremental benefits achieved by SEEC, over and above the status quo. This challenge involved:

- estimating the size of the benefits for participating SEEC households, and
- determining the extent to which benefits can be attributed to the SEEC programme – for example where some of the benefits are achieved through referring people to other programmes such as for installing heat pumps or insulation.

In theory, a further challenge is accounting for improvement in the stock of housing over time, including through greater compliance with the Healthy Homes Standards. The evidence we reviewed and gathered through the evaluation suggests that **non-compliant homes are widespread, and sub-standard housing stock is a major barrier to warm, dry homes**. On this basis, we have not accounted for improvement in the housing stock.

… so, we made assumptions based on evidence from other evaluations

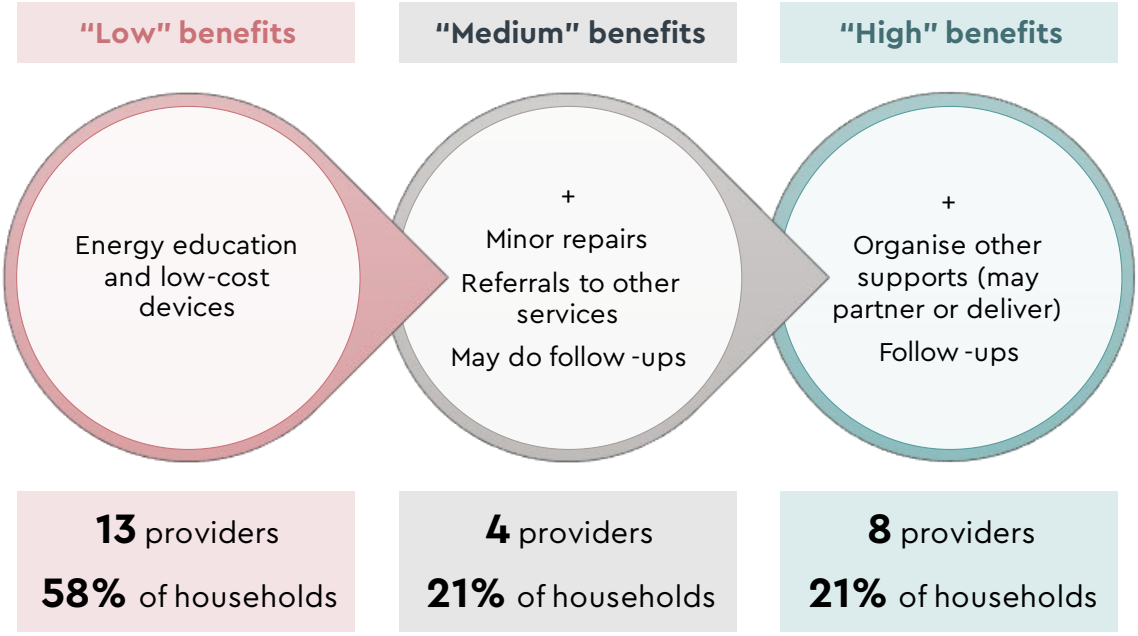
Given the data limitations described above, we lacked evidence on the outcomes of SEEC. Instead, we drew on evidence from evaluations of related programmes, as well as service-level evaluations commissioned by one of the SEEC providers (ERANZ, of its EnergyMate programme). We combined this evidence with qualitative information gleaned from our case studies and provider workshops, as well as the available reporting from providers and advice from experts, to develop assumptions about the size of benefits.

We then segmented providers, to account for differing levels of benefits

As described above, we found that different SEEC providers have different areas of focus and deliver differing levels of services. We therefore segmented providers according to a high-level categorisation of their delivery models. We did this based on the description of services provided in their funding proposals to MBIE, internet searches on providers, and information from the workshops and discussions with providers.

We classified eight providers as "high", four as "medium", and 13 as "low". In terms of households reached, this equated to 21% of SEEC recipient households reached being served by "high" benefit providers, 21% by "medium", and 58% by "low" (Figure 3). The lower numbers of households reached by the higher benefit providers reflects that providing higher-benefit services is more time-intensive and can take longer (multiple visits or contacts over an extended period). We then assigned a different proportion of the potential benefits, with providers towards the right-hand side of the spectrum having higher proportions.

Figure 3: Segmenting providers according to delivery model and expected benefits



An assumptions-based approach

Due to the lack of data on the outcomes attributable to SEEC, we took an assumptions-based approach. Our assumptions were based on literature and provider reporting, and informed by our qualitative research and by advice from experts. We then used sensitivity analysis to test the sensitivity of results to changes in our key assumptions.

Health benefits

For the health benefits, our starting point was the size of health benefits reported in the recent evaluations of WKH and HHI.[11] We then made the following adjustments, to assign a fraction of the possible benefits to SEEC:

- Households having an energy assessment that were reached by "high" providers received 50% of these benefits, "medium" providers received 30%, and "low" providers received 10%. These assumptions are based on the latest research, and expert advice[12] on the size of health benefits attributable to energy education.

[11] Caroline Fyfe et al (2022) *Evaluation of the Warmer Kiwi Homes Programmes: Full report including cost benefit analysis*. Motu Working Paper 22-14; Nevil Pierse et al (2022) *Healthy Homes Initiative: Three year outcomes evaluation*.

[12] Prof. Nevil Pierse pers. comm. 11 September 2024.

- Only a small proportion of the potential benefits are achieved by households who receive SEEC energy education through community and group events such as hui and workshops. Our base case uses an assumption of 20%.[13]

These adjustments give us the size of potential benefits that can reasonably be attributed to SEEC.

Lower electricity bills

In our base case, we assumed no net electricity cost savings, due to the complex web of factors described above that mean households may or may not achieve lower electricity bills.

We also carried out several sensitivity analyses, with different assumptions around potential net savings in household electricity costs.

In the first sensitivity test, we used data from an unpublished study by Dot Loves Data for ERANZ.[14] This study analysed a sample of monthly electricity bills from households that had received ERANZ's EnergyMate service. It found that the average monthly power bills for participating households decreased by 7.20%. Based on an average monthly power bill of $228, this equated to a monthly saving of $16 ($198 a year). We applied 100% of the $198 figure for medium and high providers, and 10% of this value for low providers.

Some SEEC providers also help households check whether they are with the cheapest electricity provider for their circumstances, using a comparison tool such as the Powerswitch website. We did additional sensitivity tests, using assumptions around the potential savings from switching.

We have no data on how many households checked their potential switching savings as a result of their SEEC visit, or how many of these subsequently switched retailer (the Dot Loves Data analysis mentioned above does not include the impacts of switching).

Based on data from the Energy Efficiency and Conservation Authority (EECA), the Electricity Authority (EA) has reported that the average household could potentially save $358 a year on their electricity bills from switching retailers using Powerswitch.[15] And citing data from a Consumer NZ survey, the EA reported that around 20% to 50% of Powerswitch users switched after using the website.[16] We did two sensitivity analyses, assuming that 20% or 50% of households achieve the potential $358 savings.

[13] This is the same assumption used by MartinJenkins in a recent CBA of the EnergyMate initiative for ERANZ (MartinJenkins (2024) *EnergyMate CBA*. Unpublished report commissioned by ERANZ).

[14] Dot Loves Data (2022) *ERANZ: Evaluation of EnergyMate initiative success*. Unpublished report commissioned by ERANZ. This report presents estimates of changes in monthly electricity *usage* and monthly electricity *bills*. We used the figures for electricity bills.

[15] Data from EECA's *Post campaign analysis – 2023 winter energy savings campaign*, reported in Electricity Authority (2024) *Options to support consumer plan comparison and switching: Consultation paper*, p. 17. Options to support consumer plan comparison and switching (ea.govt.nz)

[16] Data from the Consumer NZ Energy Retailer Satisfaction Survey 2023, reported in Electricity Authority (2024) *Options to support consumer plan comparison and switching: Consultation paper*, p. 14. Options to support consumer plan comparison and switching (ea.govt.nz) Switching rates varied by household characteristics. The Electricity Authority reported that nearly half of households with income between $100,000 and $150,000 switched, whereas one in five (20%) of households with income less than $50,000 switched. The 20% figure is likely to be more applicable to SEEC households than the 50% figure, but we have used both for comparative purposes.

We used the same segmentation assumptions as for the net electricity savings described above (10% for low providers and 100% for medium and high providers).

Figure 4: Attributing benefits to SEEC

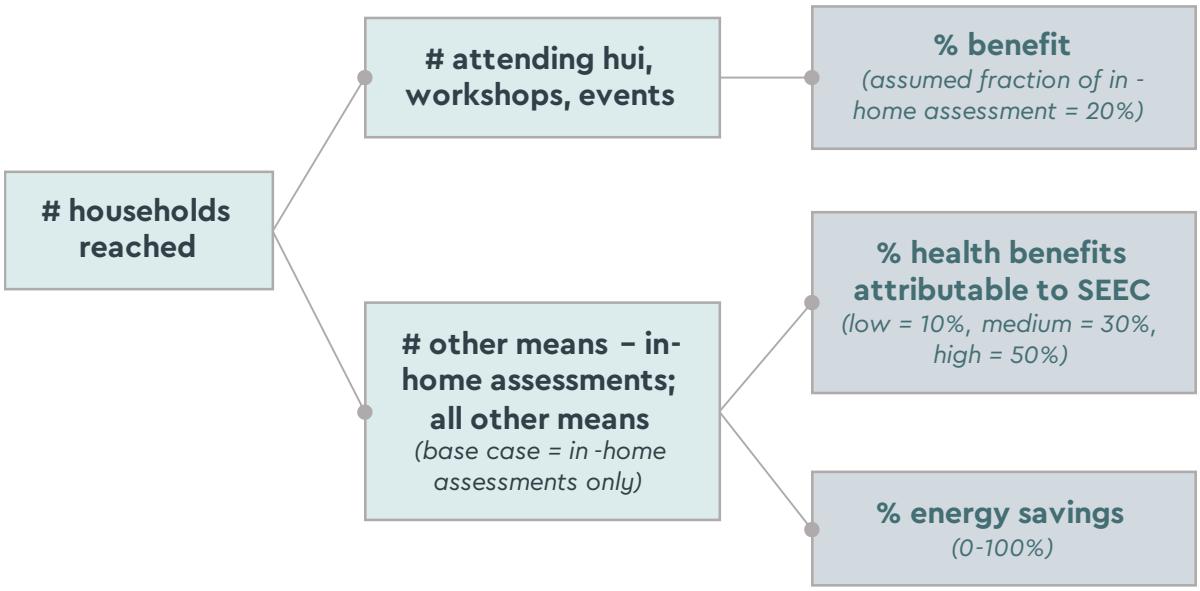


Table 5: Benefits assumptions – base case

	Quantity reduction	Unit of measurement	Benefit value per unit ($)	Annual quantified benefit per household		
				High	Medium	Low
Percentage of quantified health benefits achieved by each household				**50%**	**30%**	**10%**
Reduced hospitalisations	0.065[1]	per person	$7,235[3]	$635	$381	$127
Reduced GP visits	0.0172[2]	per person	$109[3]	$3	$2	$1
Reduced use of pharmaceuticals	0.0172[2]	per person	$39[3]	$1	$1	$0
Total health benefits		per person		**$638**	**$383**	**$128**
Net reduction in total annual household energy bill		per household		**$0**	**$0**	**$0**
Percentage of benefits attributable for hui, workshops etc				20%	20%	20%
# of people in each household				2.7	2.7	2.7

Sources:

1 Pierse et al (2022)

2 Fyfe et al (2022)

3 Treasury's CBAx database, with values adjusted to 2023

Table 6: Assumptions for sensitivity tests

	Quantity Reduction	Unit of measurement	Benefit value per unit ($)	Annual quantified benefit per household		
				High	Medium	Low
Reduced hospitalisations	0.0093[1]	per person	$7,235[2]	$90	$54	$18
Percentage of energy bill savings achieved by each household				100%	100%	10%
Average net reduction in total annual household energy bill (sensitivity analysis)		per household	$198[3]	$198	$198	$19.80
Percentage of households switching electricity providers				20%	20%	20%
Percentage of households switching electricity providers				50%	50%	50%
Average saving from switching providers		per household	$358[4]	$358	$358	$35.80
# of people in each household				6.0	6.0	6.0

Sources:

1 Fyfe et al (2022)

2 Treasury's CBAx database, with values adjusted to 2023

3 Dot Loves Data (2022)

4 Electricity Authority (2024).

Other key assumptions

Time period

The appraisal period starts in 2021/21 (Year 0), which is when the first round of funding began. We allocated programme administration costs according to the fiscal year in which they were incurred, and allocated programme delivery costs to the fiscal year in which the funding round began. We assumed delivery is completed the following year.

We assumed that benefits begin to accrue from the year following the completion of each funding round. This is a conservative assumption, as some households will start experiencing immediate benefits from some of the changes brought about by SEEC.

We used a 10-year time period for realising the benefits of each funding round. As the funding rounds cover three years, total programme benefits are realised over a 12-year period. Together with the timing of costs and delivery, this gives us a total appraisal period of 14 years.

Table 7 sets out the detail of when costs and benefits are incurred.

Table 7: Time periods for incurring costs and benefits

Funding Round	Year costs are allocated to	Average project end date	Year benefits begin
Round 1	2020/21 (Year 0)	April 2022 (Year 1)	2022/23 (Year 2)
Round 2	2021/22	September 2022	2023/24
Boost Round	2021/22	August 2022	2023/24
Round 3	2022/23 (Year 2)	September 2023 (Year 3)	2024/25 (Year 4)

Source: Provider reporting to MBIE and MBIE internal memo.

Extent to which benefits are sustained over time

As noted above, we assumed that benefits last for 10 years, for each funding round. We included 100% of benefits (according to the assumptions described above) for the first five years. This is in line with evidence that these benefits are sustained for at least three to five years following the intervention.[17] We then reduced benefits annually, to reach 0% by the end of the appraisal period.

Discount rate

We applied the Treasury's latest guidance on discount rates for projects with mainly non-commercial costs and benefits, applying 2% for the base case, and 8% for sensitivity analysis.[18]

Results

SEEC delivers a positive return on investment

The following table shows the results for the base case. It shows that SEEC achieves a positive net present value (NPV) of $5.7 million over a 14-year appraisal period. Every $1 invested in SEEC generates $1.70 in benefits, or a social return on investment of 14%.

[17] Nevil Pierse et al (2022) *Healthy Homes Initiative: Three year outcomes evaluation*.

[18] The Treasury (2024) *Updated public sector discount rates for cost benefit analysis*. Treasury Circular 2024/15, 1 October 2024. Treasury Circular 2024/15: Updated Public Sector Discount Rates for Cost Benefit Analysis

The figures above include the co-funding leveraged by providers. If we consider only the funding provided by the government, the results show an NPV of $7.6 million. Every dollar invested by the government generates $2.21 in benefits, or an annual return on government investment of 21%.

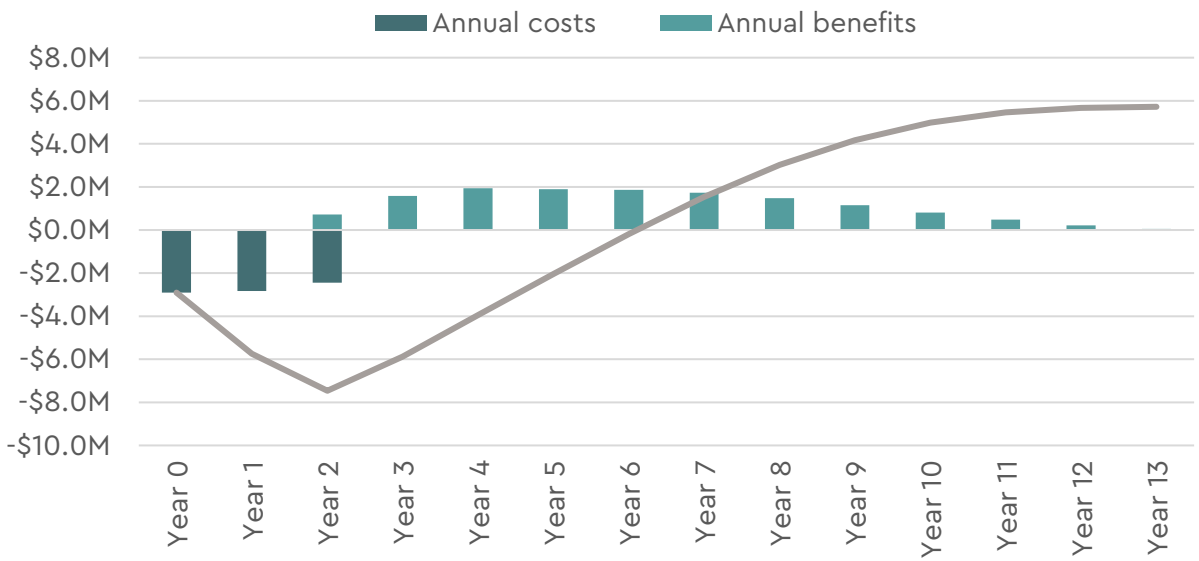
Table 8: CBA results – base case

Summary of costs and benefits over a 12-year period (2% discount rate)	
Costs	
Costs to administer and deliver the SEEC programme, including co-funding	$8.2 million
Quantified benefits	
Health benefits from warmer, drier homes	$13.9 million
Net electricity savings for households	$0
Summary results (including co-funding)	
Net present value	$5.7 million
Benefit-cost ratio[1]	1.70
Payback period	6.2 years
Social return on investment	14%
Summary results (government funding only)	
Net present value	$7.6 million
Benefit-cost ratio (total)	2.21
Payback period	5.3 years
Annual return on government investment	21%

Notes:

1 A BCR of greater than 1 means that the benefits exceed the costs.

Figure 5: Annual costs, benefits, and cumulative NPV (base case, including co-funding)



Source: MartinJenkins analysis

Table 9 shows how the BCR for SEEC compares to CBAs of other relevant programmes. These other studies each used different discount rates – for example, Fyfe et al 2022 used 5%; Pierse et al (2022) used 6%; and Grimes et al (2012) used 2.5%, 4%, and 8%. Our result is in line with other programmes, sitting broadly in the middle of the results from these other studies. This result seems intuitive, as SEEC involves less costly interventions than HHI and WKH, but also has value in itself and leverages value from these other programmes through additional referrals (that would not have otherwise occurred) and unlocking greater benefits from these programmes (such as educating people how to correctly use their heat pumps).

Table 9: Comparison of BCRs

Programme evaluation	BCR	Notes
SEEC	1.70	Or 2.21 based on government funding only
HHI (Pierse et al, 2022)	1.27	
WKH (Fyfe et al, 2022)	1.89	Conventional BCR
Warm Up NZ: Heat Smart (Grimes et al, 2012)	3.9	Central estimate. Range of 2.6-4.6
Proposed healthy homes standards (NZIER 2018)	1.34	Heating capacity to be able to achieve and maintain 18°C
	1.28	Heating capacity to be able to achieve 20°C

Sensitivity analysis

The following table presents the impact on the CBA results of varying key assumptions.

Table 10: Sensitivity analysis

Assumptions	BCR	Notes
Base case	1.70	Discount rate of 2%
Discount rate of 8%	1.27	
Net energy bill reduction included	2.23	Includes energy savings based on Dot Loves Data (2022) (base case assumes no savings)
Larger average households	3.78	Assumes 6 people per household (higher than the national average of 2.7), based on provider reporting
Larger households and net energy savings	4.31	Combines the above two assumptions
Net energy bill reduction and 20% of households switch electricity providers	2.42	Includes energy savings based on Dot Loves Data (2022) and 20% of households switching electricity providers for a more cost-effective plan (base case assumes no savings)
Net energy bill reduction and 50% of households switch electricity providers	2.71	Includes energy savings based on Dot Loves Data (2022) and 50% of households switching electricity providers for a more cost-effective plan (base case assumes no savings)
Lower avoided hospitalisations	0.25	Uses a figure from Fyfe et al (2022) of 0.0093 reduced hospitalisations per person (instead of 0.065 from Pierse et al, 2022)
Break-even point (BCR of 1)	1.00	Achieved with health benefit attributions of 25% for high providers, 14% for medium providers and 8% for low providers

Recommendations

Strategic planning to shape the future of SEEC

Over its first few years of operation, MBIE has been "learning by doing" in its approach to procurement and delivery monitoring. We see value in MBIE conducting a strategic planning session to shape the next five years of the programme. Including three or four of the more mature SEEC providers in this strategic planning would bring valuable real-world operational know-how.

To help inform this strategic planning, we recommend that key members of the MBIE SEEC team accompany providers on some home energy assessment visits. This would deepen the team's understanding of the operating context, including the challenges faced by rural and remote communities. These visits would need to be very carefully designed and managed to ensure ethical practices are followed, including informed consent from participating households. The exercise must not detract from the quality of services received by households, and must avoid straying into "poverty tourism".

Optimising the value from future funding rounds

In our view, spreading the relatively modest amount of available SEEC funding across a large number of providers is not optimal. The current approach means funding is spread thinly, and is insufficient for the time-intensive work needed to work with families, do follow-ups, and carry out good-quality monitoring.

We see value in focussing funding on a smaller number of providers, who can demonstrate that their delivery model is aligned with the success factors discussed above. Funding should be prioritised towards:

- providers that have the reach and the well-established community networks needed to gain referrals and be trusted to enter people's homes, and
- providers who are partnered with or are well-connected to other support services and can either refer into or directly organise other services such as insulation, heating, house repairs, curtains, budgeting, and advocacy.

Some regions may lack existing providers who can fully meet these criteria. If MBIE wishes to support providers in these regions, these providers should be required to demonstrate how they will build their capacity and capability to meet these criteria. This should include being required to participate in the provider network (discussed below).

Overall, MBIE should fund a smaller number of providers, so that providers can also be funded to do follow-up visits and better monitoring (assuming no increase in the total available funding for the SEEC programme).

Strengthen coordination and collaboration across providers

Greater coordination among SEEC providers would help reduce the variation in the quality of services and avoid individual providers "reinventing the wheel".

We recommend that MBIE provide support for a national network of SEEC providers, to facilitate coordination and collaboration across providers, including sharing information and lessons learned. Options include:

- funding an existing sector network (such as CEN)
- MBIE performing this role, or
- funding the creation of a new network.

Given CEN's pre-existing expertise, relationships, and activities, providing funding for them to perform this role is likely to be the most efficient and effective option (should CEN wish to extend its activities in this way).

MBIE should also investigate avenues for supporting bulk purchasing of SEEC devices and equipment, to ensure stock availability and competitive pricing for providers. Options could include establishing national purchasing contracts, or providing support through CEN as a platform for bulk purchasing.

Other recommended improvements

In addition, MBIE should:

- Plan to confirm funding earlier, in the financial year before delivery begins, so that providers have certainty and can gear up well ahead of winter. This applies to both existing SEEC programmes and pilot programmes, as providers need to confirm their staffing arrangements, and potentially expand their workforce capacity for the duration of the SEEC funding, as well as purchase stock.
- Increase the up-front payment available to providers to a level commensurable with other government contracts (in the order of 75%). Any concerns that MBIE may have regarding potential non-delivery should be managed at the procurement stage (through due diligence on applicants' track record and ability to deliver).
- Merge the SEEC Fund and SEEC Equipment and Devices Fund, so that providers have the discretion and flexibility to deliver tailored services that meet the needs of households, within their funding envelope
- Review the current pilot of multi-year funding, with a view to expanding this in future
- Stay actively connected with relevant government agencies, including other parts of MBIE around enforcement of the Healthy Homes Standards, and with Kainga Ora around sub-standard social housing.

More meaningful monitoring and reporting

The reporting required by providers needs to strike a balance between minimising the compliance burden on providers, and gathering metrics that provide meaningful information on the impact of SEEC. We recommend that existing outputs measures be improved, and that there be a shift from outputs-focussed measures to some outcomes measures.

Providers would need to be funded for the follow-ups needed to monitor outcomes. This could be managed within the existing SEEC budget by:

- dropping some of the less meaningful outputs reporting (such as detail on the types and costs of devices provided), and
- providing more funding for fewer providers (as recommended above, which would achieve some economies of scale and enable more effective support and monitoring).

Below, we make some recommendations for improvement. Resulting changes to reporting templates should be road-tested with a subset of providers, to ensure they are practical and fit-for-purpose.

Improving outputs measures

Rather than reporting on the number of events and home assessments performed, providers should report on the number of unique households reached. This would involve tracking whether attendance at an event is later converted into a home assessment, and linking follow-up visits to households rather than reporting these separately. Consistent demographic information should be collected by all providers, so that this data can be aggregated.

Developing outcomes measures

To measure short-term outcomes, providers should be reporting on the actions recommended and actions taken, through follow-up visits or calls.

To assess medium-term outcomes, providers need to be measuring whether homes are warmer and drier, and whether families experience improved health outcomes, after receiving services from SEEC. There are (at least) three potential ways of measuring these outcomes, each of which has advantages and drawbacks.

- **Directly measuring home temperature and humidity** – This is done through placing sensors in homes and remotely monitoring readings. Some SEEC providers have been experimenting with this. One of the challenges is how to interpret the data (which can be quite noisy) and how to attribute any positive change to SEEC-funded support.
- **Collecting NHIs to enable IDI research** – This involves obtaining household members' National Health Identifiers (NHIs) at the time of the home assessment (with their informed consent). This would enable future quantitative research in Stats NZ's Integrated Data Infrastructure (IDI) on health outcomes, similar to that undertaken by Pierse et al (2022). However, it would take several

years before sufficient data is gathered, and for relevant datasets to be updated in the IDI. This would be a long-term exercise.

- **Self-report surveys** – This involves providers following up with households (after, say, six months) to ask them about the impact of the changes experienced as a result of SEEC. For example:
  - whether their home feels warmer and drier
  - whether they are seeing less mould, and
  - whether they have experienced fewer GP visits, hospital admissions, days off work or school, and so on for relevant conditions (such as respiratory ailments).

  The survey forms would need to be consistent across providers. They should be simple, with just four or five questions. Ideally, the surveys would be conducted by someone other than the person who did the assessment, to help guard against positivity bias. Ideally, there would be a follow-up survey after 12 months, to test the persistence of changes. A drawback of this approach is that providers can experience difficulty in engaging households post-assessment, so they may achieve low response rates.

On balance, we think that requiring providers to conduct self-report surveys is the most pragmatic approach. This does not preclude the other options, should MBIE wish to pursue them.

Providers would need to be funded to conduct these surveys. As discussed above, assuming the total available SEEC budget remains unchanged, this should be achieved by spreading funding less thinly. This would involve funding a smaller number of providers, and including funding for follow-up visits and better monitoring (through self-report surveys).

An indicative set of performance measures

Bringing this all together, an indicative set of performance measures could look something like the following table. Providers would capture this information for each household, then aggregate it for their reporting to MBIE. MBIE would need to provide guidance on the definitions for each category.

Table 11: Indicative performance measures

Type of measure	Detail
Total number of unique households reached	• Reached by hui, group or community event only • In-home assessment following hui, group or community event • In-home assessment referred by other means
Details for in-home assessments	
Ethnicity of lead household contact[1]	• Māori, Pacific Peoples, European, Asian, MELAA, other
Household size	• Cardinal numbers so can report average household size
Housing tenure	• Rental, owner-occupied
Location type	• Urban, provincial, rural
Actions recommended	Number and type, for example: **Behaviour change** • Checking electricity plan and provider • Ventilating the house • More efficient use of electricity (incl. correct use of heating sources) • Wiping condensation, cleaning mould **Low-cost devices provided/installed** (yes/no)[2] **Improvements and repairs (including via referral)** • Underfloor/ceiling insulation • Efficient heating source • Extractor fan • Curtains • Minor repairs (holes, leaks, window frames, window latches etc) • More major repairs recommended
Self-reported actions and impact from surveys (completed 6 months and 12 months after the home assessment)	
Actions implemented	Number and proportion of actions recommended (by type)
Impact after 6 months Impact after 12 months	• Home feels warmer, drier • Less visible mould • Improved health (fewer GP visits, ED visits, hospital admissions, prescriptions, fewer days off work or school)

Notes

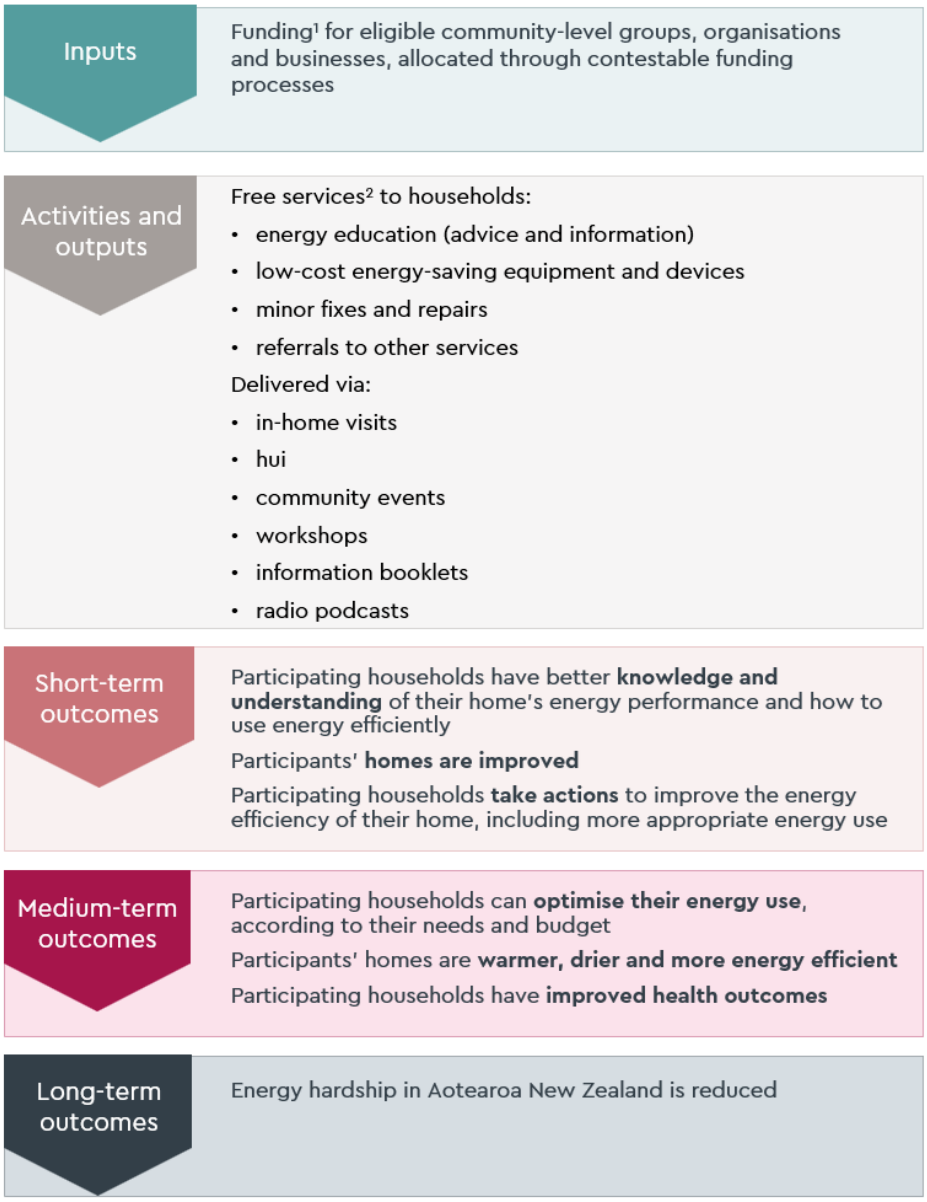
1 These are the major ethnicity categories used by Stats NZ.

2 We recommend dropping reporting on the numbers of different types of devices provided.

Joining up across government

There is significant overlap in objectives across government programmes (such as HHI and WKH), and many SEEC providers operate across multiple programmes and funds. There could be benefit from government agencies coordinating their reporting requirements, to align key performance metrics. This would help reduce the compliance burden on providers, enabling them to focus their monitoring efforts on a few key metrics that matter. It would also support more comprehensive evaluation of the government's efforts to reduce energy hardship.

Appendix 1: Intervention logic for the SEEC Programme



1 Some funding recipients provide or source co funding

2 Not all funded programmes provide minor fixes and repairs, and they don't all use all the potential delivery mechanisms

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